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ABSTRACT

Data from the first two years (1975-76 and 1976-77) of a three year study of Demonstration Compensatory Education Projects are presented in this report. The demonstration study was designed to produce evidence about proposed changes in the allocation of Title I funds. Of the thirteen districts chosen for the study, eleven elected to change their Title I school selection procedures from poverty to achievement criteria. All thirteen schools chose to expand the numbers of schools and/or students receiving Title I services. The report describes the allocation policy changes made by the districts. It also presents the effects of these changes on the characteristics of participating students and the services that they received, focusing on changes in the achievement level, poverty status, and minority status of Title I students. Since the large majority of Title I resources available to the Demonstration districts is allocated to language arts instruction in the elementary grades, the receipt of such instruction is emphasized. Appended to the report is information on the sampling plan, data sources, and analytic methods utilized in the research, current regulations with respect to eligibility and targeting procedures, and site by site breakdowns of the data. (Author/GC)

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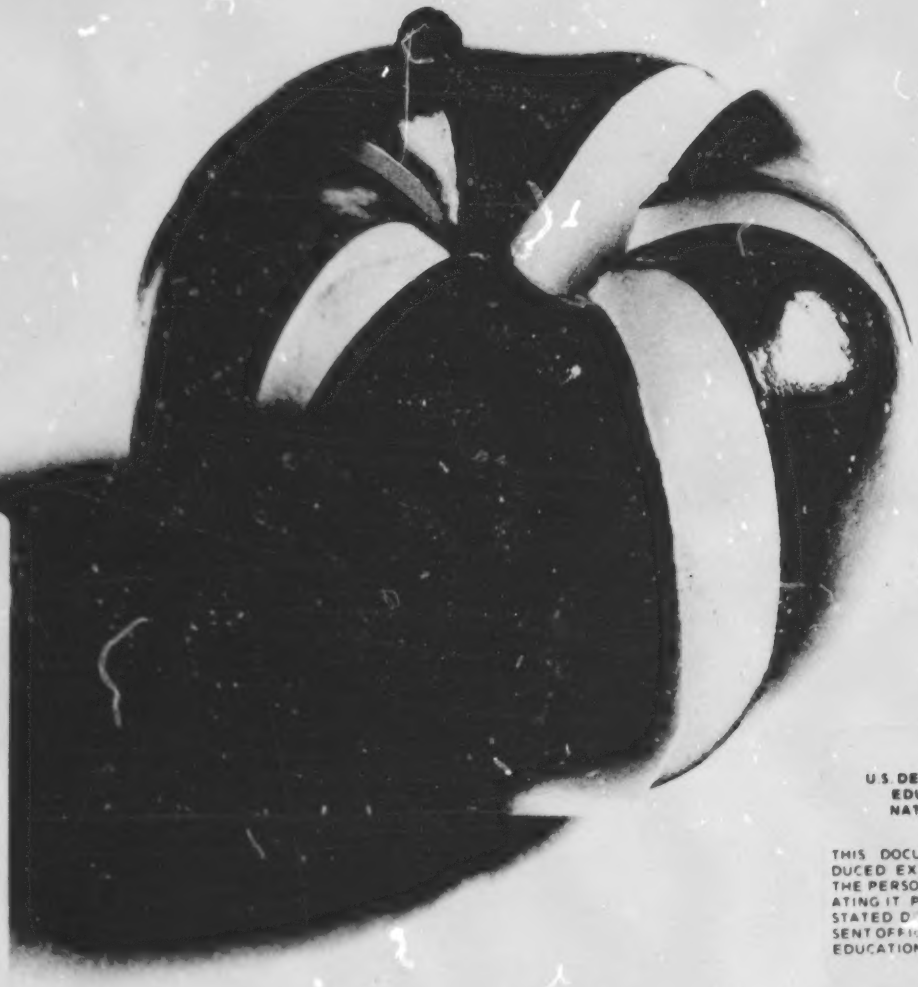
ESEA Title I Allocation Policy: Demonstration Study

Results of First Year Implementation Part 1



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ESEA TITLE I ALLOCATION POLICY: DEMONSTRATION STUDY

Results of First Year Implementation

PART I

March 30, 1978

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TABLE OF CONTENTS

		Page
	PREFACE	ix
	EXECUTIVE SUMMARY	xiii
1.0	INTRODUCTION	1
1.1	The NIE Compensatory Education Study	2
1.2	District Selection	5
1.3	Allocation Changes Adopted by the LEAs	7
1.4	Organization of the Report	10
2.0	EXPANSION OF PROGRAMS IN DEMONSTRATION DISTRICTS	13
2.1	Changes in Schools and Students	14
2.2	Changes in Resource Distribution	17
3.0	STUDENT CHARACTERISTICS AND COVERAGE	23
3.1	Introduction	23
3.2	Method	26
3.3	Design and Analysis	27
3.4	Changes in Student Characteristics	31
3.5	Changes in Coverage	42
3.6	Summary	49
4.0	CHANGES IN SERVICES	59
4.1	Introduction	59
4.2	Method	60
4.3	Findings	65
4.4	Relationships Between the Changes in Services and the Changes in Allocation Procedures Made by the Districts	78

APPENDICES

APPENDIX A:	TECHNICAL APPENDIX	8
APPENDIX B:	PROCEDURES FOR ALLOCATING FUNDS WITHIN SCHOOL DISTRICTS UNDER STANDARD TITLE I REGULATIONS	115
APPENDIX C:	STUDENT CHARACTERISTICS	123
APPENDIX D:	CHANGES IN SERVICES	169
APPENDIX E:	STATEMENT OF DR. JAMES J. VANECKO BEFORE SUBCOMMITTEE ON ELEMENTARY, SECONDARY AND VOCATIONAL EDUCATION, UNITED STATES HOUSE OF REPRESENTATIVES	269

LIST OF TABLES

		Page
1.0	INTRODUCTION	
1.1	Allocation Policies Adopted by the Thirteen Demonstration Districts in 1976-77	9
2.0	EXPANSION OF PROGRAMS IN DEMONSTRATION DISTRICTS	
2.1	Changes in the Number of Public Elementary Schools Served by Title I in the Demonstration Districts	15
2.2	Changes in the Number of Public Elementary Students Served by Title I in the Demonstration Districts	16
2.3	Changes in the Number of Public Elementary Students Per School Served by Title I in the Demonstration Districts	18
2.4	Changes in Elementary School Compensatory Teaching Staff Assigned to Title I Students	20
2.5	Title I Funds Available in the Demonstration Districts in 1976-77 Relative to Title I Expenditures in 1975-76	21
3.0	STUDENT CHARACTERISTICS AND COVERAGE	
3.1	Changes in the Percentage of Title I Students Who Are Low Achieving, Poor and/or Minority Group Members	32
3.2	Changes in the Percentage of Title I Students Reading at Three Different Achievement Levels	36
3.3	Change in Poverty Proportions Using Three Economic Indicators	41
3.4	Percentage of All Low Achieving Children Who Participate in Title I	43
3.5	Percentage of All Free Lunch Recipients Who Participate in Title I	44
3.6	Percentage of All Minority Children Who Participate in Title I	45
3.7	Percentage Change in Two Types of Coverage From 1975-76 to 1976-77	47
3.8	Percentage of Low Achieving Children Who Were in Title I Schools and Did Not Receive Title I Services in Year 1 (1975-76) Compared With the Percentage Increase in Low Achieving Children Served During the Demonstration Year 1976-77	48
3.9	Year 1 Baselines and Percentage Changes in Characteristics, Coverage, and Students Served	54

LIST OF TABLES

(continued)

Page

4.0 CHANGES IN SERVICES

4.1 Time (Minutes Per Day) Spent in Compensatory and Regular Language Arts Instruction by Title I Students. 66

4.2 Proportion of Time Title I Students Spent in Instructional Groups of Various Sizes in Their Compensatory Language Arts Classes. 70

4.3 Proportion of Time Title I Students Spent With Different Types of Instructors in Compensatory Language Arts Instruction 72

4.4 Additional Language Arts Instruction Received by Title I Students as Compared With Non-Title I Students 74

4.5 Change in Minutes Per Day of Compensatory Language Arts for Title I Students by School Type in the Demonstration Districts 77

4.6 Percentage Change in Compensatory Language Arts Instruction and Number of Public Elementary Students Served by Title I. 79

4.7 Changes in Elementary School Compensatory Teaching Staff Assigned to Title I Students . . 81

4.8 Change in Staff/Student Ratio Between 1975-76 and 1976-77 82

APPENDICES

LIST OF FIGURES

Page

3.0 STUDENT CHARACTERISTICS AND COVERAGE

3-1 Pie Chart Indicating the Division of the Entire Elementary School Population Into Those Who Are Disadvantaged and Those Who Are Not and Showing the Allocation of Title I Services Across Those Groups. 24

3-2 Comparison of Changes in the Proportions of Title I Students Who Are Educationally Disadvantaged and Who Are Economically Disadvantaged 35

3-3 Comparison of Changes in the Characteristics of Title I Students at Different Achievement Levels. 39

3-4 Typology of Student Characteristics and Student Coverage Outcomes 50

3-5 Student Characteristics and Student Coverage Outcomes for Achievement Levels 52

3-6 Student Characteristics and Student Coverage Outcomes for Poverty Levels 56

APPENDICES

PREFACE

The Compensatory Education Demonstration Study is a three-year study of the effects of changes in the procedures by which ESEA Title I funds are allocated at the intra-district level. Thirteen Local Education Agencies (LEAs) are cooperating with the National Institute of Education (NIE), the sponsoring agency, and Abt Associates Inc. (AAI), the research contractor, in this research. During 1975-76 these school districts conducted their Title I programs under current federal Title I guidelines. For 1976-77 and 1977-78 certain aspects of these guidelines were waived, and a number of unique and policy-relevant alternatives have been implemented by the LEAs involved in the Demonstration.

This report compares data obtained during 1976-77, the first implementation year, with that obtained during the 1975-76 baseline year. It is an interim document designed to convey the material provided by AAI to support the recent NIE report to Congress and accompanying Congressional testimony by Dr. James Vanecko.* Areas covered include the alternative allocation policies adopted by the 13 Demonstration districts and the effects of these policies on the characteristics and experiences of Title I students.

Additional analyses are currently being performed on the data reported here. In particular, the effects of various allocation options on student characteristics are being simulated. In addition, data on changes in program design, accompanying costs, community response to the Demonstration, and issues surrounding implementation are being examined. These additional analyses will be incorporated in a final report on the first implementation year to be published in the spring of 1978.

The reader is referred to two earlier AAI reports for additional background material on the 13 Demonstration projects and the research design underlying the Demonstration Study. The Implementation Decisions and Research Plan**

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*Statement of Dr. James J. Vanecko, Senior Social Scientist and Demonstration Project Director, Abt Associates Inc., Cambridge, Mass., before the Subcommittee on Elementary, Secondary, and Vocational Education, U.S. House of Representatives, November 1, 1977. See also Demonstration Studies of Funds Allocation Within Districts (Washington, D.C.: National Institute of Education, September 30, 1977).

**Technical report, James J. Vanecko, et al., ESEA Title I Allocation Policy: Demonstration Study--Implementation Decisions and Research Plan (Abt Associates Inc.: Cambridge, Mass., 1977).

describes the allocation procedures utilized by the districts in 1975-76, under current regulations. It also presents the analytic model, sampling plan, instrumentation, and analytic methods which were designed to address the research objectives of the study. Analyses of Baseline Data* describes the effects of current regulations on program design and on the characteristics and experiences of Title I students. Also included is a discussion of the application and planning processes followed by the districts in order to develop their alternative strategies, as well as community response to those plans. In addition to these reports, information on program costs in 1975-76 and detailed descriptions of each Demonstration project will be published in early 1978, in two companion volumes.**

In addition to the senior authors, a large number of individuals made significant contributions to this document. Dr. Ann Milne of the National Institute of Education was particularly helpful. She provided much-appreciated support and assistance in the early development of the research plan. In addition, much of the organization of this report can be attributed to numerous discussions and mutually developed early drafts which served as the foundation for the NIE report to Congress and supporting testimony. Dr. Iris Rotberg and Dr. Paul Hill of NIE also provided helpful suggestions during these important stages of the research effort.

Mr. David Budding and Mr. Peter Miller, in their roles as internal reviewers of the project, played a major part in the production of this report. Their comments and suggestions were also invaluable in preparing the Congressional testimony. Both have a keen sense of the policy relevance of the study and have helped to focus the research on the most important of the many questions which could be addressed.

Technical support was provided by a number of persons. Mr. Michael Duvos and Mr. David Poppe were responsible for overall design and maintenance of the data base necessary for the analyses presented here. In addition,

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*James J. Vanecko, et al., ESEA Title I Allocation Policy: Demonstration Study--Analyses of Baseline Data, Volumes I and II (Abt Associates Inc.: Cambridge, Mass., October 31, 1977).

**D. Catherine Baltzell and Nancy N. Brigham (Eds.), et al., ESEA Title I Allocation Policy: Demonstration Study--Site Descriptions for the Baseline Year, Volumes I and II (Abt Associates Inc.: Cambridge, Mass., 1978); and Jane H. Sjogren and Richard Ames, ESEA Title I Allocation Policy: Demonstration Study--Cost Study: Planning Year 1975-76. (Abt Associates Inc.: Cambridge, Mass., 1978).

Ms. Rosamund Ladner, Mr. Ennio Mingolla, Ms. Leah Weiss, and Ms. Jaime Grubin provided much-appreciated assistance in data processing, data management, and report preparation.

Data collection was coordinated by Ms. Julia Shepard in 1975-76, and by Ms. Ruth Scheer in 1976-77. Ms. Marion Grogan and Ms. Ilana Rhodes monitored the efforts of District Research Coordinators at the Demonstration sites. Mr. Lee Foster coordinated the instrument mailing, and Mr. Mahmud Rahman supervised the coding operations, assisted by Ms. Janice Darling and other supporting staff. Without all of their efforts and the splendid cooperation of the Demonstration districts, the research reported here would not have been possible.

Special recognition and thanks are also due Ms. Mary-Ellen Perry for typing and coordinating the many drafts of this report. Her patient response to and competency in meeting the many demands involved are greatly appreciated, along with the valuable work and contributions of secretaries Ms. Jacqueline Thomas and Ms. Claudia Kelly.

EXECUTIVE SUMMARY

This report presents data from the first two years of a three-year study of Demonstration Compensatory Education Projects. The thirteen school districts participating in the study were granted special permission from the Commissioner of Education to establish "working models" of the Title I allocation changes considered by Congress during deliberation on the Education Amendments of 1974. The Demonstration Study, which is one component of the National Institute of Education's Congressionally mandated Compensatory Education Study, was designed to produce evidence about the practical consequences of these intra-district allocation changes.

Participating districts were given two basic choices:

- to change from poverty to achievement criteria in the selection of Title I schools; and/or
- to alter the number of schools and students to be served.

All but two of the districts conducting Demonstration projects did elect to shift from the standard poverty-based method of selecting Title I schools. In addition, all 13 districts chose to expand the number of schools and/or students receiving Title I services.

The purpose of this report is to present selected results from the first two years of research on the Demonstration projects. It analyzes differences between the 1975-76 school year, during which the LEAs continued to allocate Title I funds on the same basis as before, and the 1976-77 school year, during which they implemented changes.

The report describes the allocation policy changes made by the districts, including alterations in the number of schools and students served by Title I. It also presents the effects of

these changes on the characteristics of participating students and the services which they received. Since most of the Title I funds in these districts, as nationally, are concentrated on the elementary grades, focus is on the elementary level.

Subsequent reports will expand on these two-year findings and will present results from the third year of the study. Additional areas to be addressed include: 1) changes in program design and costs; 2) community response to the Demonstration projects; and 3) issues surrounding implementation of alternative allocation strategies.

Allocation Policy Changes

The 11 districts which elected to change their school selection procedures did so in a variety of ways:

- Six districts chose to target low-achieving students directly regardless of the schools they attended and, thus, to serve all elementary schools. These are referred to as direct allocation districts.
- Two districts chose to rank schools based on the proportion of students with low reading test scores and to target schools below a certain cut-off level. These are referred to as achievement allocation districts.
- Two districts retained the standard practice of selecting schools based on the proportion of students from poor families, while adding schools based on the proportion of students who were low achieving.
- Finally, one district extended service to all elementary and middle schools, but chose to select all or most all students in some schools, and only those with low test scores in others.

It should be noted that the selection of these options was related to district characteristics, particularly size. No large districts chose the direct allocation option, nor did any of them seriously consider this option during

planning. There is no doubt that the extension of Title I services to all schools in the larger districts would have presented very different administrative problems than it did in the smaller ones.

All districts except one elected to increase the number of elementary schools served in 1976-77. This was particularly true of the direct allocation districts (i.e., those serving low-achieving students in all elementary schools) where the proportional increase in schools served ranged from 20% to 433%. In the two districts substituting achievement for poverty criteria, the proportional increases were 16% and 85%, respectively. In all except one of the remaining districts, the proportional changes were relatively small, ranging from 0% to 14%. The one exception, Alum Rock, showed a 100% increase.

All but two districts increased the number of elementary students actually served by Title I. Once again, the most dramatic increases occurred in the direct allocation districts, where the proportional increases ranged from 29% to 240%.

Since participation in the Demonstration Study did not affect the size of the Title I grants received by the 13 districts, it was assumed that allocation changes would be made within the constraints of previous expenditure levels. Districts did increase their Title I expenditures at the elementary level, however, to accommodate program expansion. Preliminary analyses suggest that non-Demonstration related increases in Title I grants and/or unspent Title I funds carried over from previous years could have accounted for part, but not all, of this increase. The remainder must have come from sources other than Title I (i.e., other federal, state, or local funds) and/or the reduction of services in non-elementary grade spans.

Changes in Student Characteristics and Coverage

Because most of the districts chose to extend their Title I services to more students, the absolute numbers of low achieving, poor, and minority students increased during the first year of implementation. Thus, coverage of these disadvantaged groups did increase. On the other hand, there were also increases in the absolute numbers of non-disadvantaged students served, as well. Thus, the selectivity of the Title I population, i.e., the proportion of Title I students who were disadvantaged, did not necessarily increase. Changes in selectivity were not uniform for different types of disadvantage or for different districts.

Averaging across all districts, there was a slight increase in the proportion of Title I students who were low achieving, where low achieving was defined as reading one or more years below grade level. In 1975-76, the average was 65%; in 1976-77, it was 69%. Results for the direct allocation and achievement allocation districts, the most policy relevant of the options selected, can be summarized as follows:

- Averaging across the six direct allocation sites, there was a 5% increase in the proportion of Title I students who were low achieving. Increases were noted in four sites, two of which were found to be statistically significant. Decreases were noted in two sites, but neither was statistically significant.

- The results for the two achievement allocation sites were mixed. There was a 4% decline in Charlotte and a 16% increase in Winston-Salem. Both of these changes were found to be statistically significant, but they may be due to factors other than the Demonstration.

On the other hand, there was a fairly consistent decrease in the proportion of poor students served by Title I. In fact, when poverty was defined as participating in a free or

reduced-price lunch program, decreases were found in nine of the 13 districts. The results for the direct and achievement allocation options were as follows:

- Averaging across the six direct allocation sites, there was an 8% decrease in the proportion of Title I students who were poor. Decreases ranging from -2% to -15% were noted, three of which were found to be significant.

- The poverty findings in the achievement allocation districts were mixed. In Charlotte, a statistically significant decrease of 12% was found; in Winston-Salem, a significant increase of 7% was found.

- The third student characteristic examined was race. Analyses of race data were concerned with changes in minority group membership, defined as all other races besides White. No statistically important increases or decreases were found in these racial characteristics.

In summary, these findings indicate that the allocation policy options adopted by these districts result in small changes in the characteristics of the students served. Although variation across districts does exist, generally, the proportion of low-achieving students increases slightly, the proportion of poor students decreases slightly, and the proportion of minority students remains unchanged.

Changes in Services Received by Students

Changes in the services received by Title I students were generally similar across the 13 Demonstration districts and can be summarized as follows:

- There was generally a small decrease in the amount of time during which Title I students received compensatory language arts instruction.

- There was generally a larger increase in the amount of time during which Title I students received regular language arts instruction.

- Overall, therefore, Title I students gained a small amount of time in total language arts instruction (compensatory plus regular).
- The nature and intensity of Title I language arts instruction--the size of the instructional group and the type of instructor--did not change as a result of the Demonstration.
- The time lost in compensatory language arts instruction (14%) was relatively small compared with the number of additional students served (71%).

Taken at face value, these data suggest that districts can significantly increase the number of students served by Title I without substantially affecting the nature of the services they receive. Many districts, however, assigned additional staff in order to avoid large reductions in program character or intensity. Preliminary analyses indicate that in many cases this increase was made possible by reducing services in the non-elementary grades and/or by using monies carried over from unspent Title I funds as well as monies from other funding sources. Based on these early findings it appears unlikely that districts could continue to serve increased numbers of students and maintain the same level of service for a number of years without additional funding. Further analyses are being conducted to specify the source(s) of funds used to accommodate expansion in each district and the likelihood that districts could continue their Demonstrations over time.

1.0 INTRODUCTION

The Study of Demonstration Title I Compensatory Education Projects is one component of the National Institute of Education's (NIE) Congressionally mandated Compensatory Education Study. The Demonstration study is concerned specifically with the effects of changes in ESEA Title I allocation policy at the intra-district level. This report, which is one of a series, focuses on the effects of these allocation changes on the number of schools and students served by Title I and on the characteristics and experiences of these students.

The Demonstration study is comprised of Demonstration Projects in 13 Local Education Agencies (LEAs) and the research on the projects being conducted by Abt Associates Inc. This Demonstration research has two primary objectives. First, it is designed to document the ways in which the actual flow of Title I funds to schools and students changes as a result of the new funds allocation process. Second, it is designed to examine the relationship of these alternative allocation policies to 1) students served by the program, 2) the character and intensity of the services received by these students, 3) the reaction of the community to the changed allocation policies, and ultimately 4) the effectiveness of Title I in meeting the educational needs of children with learning problems.

To observe these relationships, a three-year study of the participating LEAs was designed. During the first year of the study, 1975-76, the 13 LEAs operated their Title I programs using standard allocation procedures. During the following two years they were granted waivers to operate their programs using alternative funds allocation processes. By comparing measures of the Title I program taken in the 1975-76 school year with those obtained in the two succeeding years, the changes brought about by these alternative funds allocation processes will be assessed. This report compares data obtained during the first two of these years. Subsequent reports will

expand on these two year findings and will present results for the full three years of the study.

1.1 The NIE Compensatory Education Study

In the Education Amendments of 1974 (P.L. 93-380), Congress instructed the National Institute of Education to conduct a study of compensatory education, including compensatory programs financed by states and those funded under authority of Title I of the Elementary and Secondary Education Act. Section 821 required the following to be included in the study:

1. An examination of the fundamental purposes of such programs, and the effectiveness of such programs in attaining such purposes;
2. An analysis of means to identify accurately the children who have the greatest need for such programs, in keeping with the fundamental purposes thereof;
3. An analysis of the effectiveness of methods and procedures for meeting the educational needs of children, including use of individualized written educational plans for children, and programs for training the teachers of children;
4. An exploration of alternative methods, including the use of procedures to assess educational disadvantage, for distributing funds under such programs to states, to State Education Agencies, and to Local Education Agencies, in an equitable and efficient manner, which will accurately reflect current conditions and insure that such funds reach the areas of greatest current needs and are effectively used for such areas;
5. Not more than 20 experimental programs, which shall be reasonably geographically representative, to be administered by the Institute, in cases where the Institute determines that such experimental programs are necessary to carry out the purposes of Clauses (1) through (4)...;
6. Findings and recommendation...with respect to matters studied under Clauses (1) through (5).

In response to this Congressional mandate, NIE initiated a series of 35 research projects,* including, as authorized under Clause (5), a group of 13 Demonstration Title I Compensatory Education Projects. The 13 LEAs which volunteered to conduct these projects were granted waivers of federal Title I regulations for the allocation of Title I funds. These waivers, and the mandate on which they were based, permitted NIE to establish "working models" of within-district changes in the Title I allocation process considered by Congress. The "working models" developed by the districts resulted in changes from the current poverty based procedures for allocating Title I funds to a number of alternative procedures for determining school and student eligibility and for distributing Title I resources to both schools and students. Of particular policy interest are the following: 1) the use of achievement, rather than poverty, criteria to determine school eligibility; 2) the elimination of school eligibility entirely, resulting in the direct allocation of Title I resources to low-achieving students regardless of the schools attended; and 3) the distribution of services to a greater number of schools and/or students (i.e., deconcentration at the student and school levels).

Under existing regulations, LEAs are required to "target" Title I funds for schools which have high concentrations of low-income students, and within schools to serve students with the most severe educational problems. Thus, under existing policy, Title I programs are concentrated on educationally disadvantaged students in schools with a relatively high (for the district) concentration of students from low-income families. Educationally disadvantaged students in other schools cannot receive Title I services.

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*For a more complete description of the entire NIE study, see Evaluating Compensatory Education: An Interim Report on the NIE Compensatory Education Programs (Washington, D.C.: National Institute of Education, December 31, 1976).

Proponents of a shift to allocation based on achievement criteria or allocation directly to students regardless of schools attended argue that better targeting of compensatory programs to the most academically needy would result. Opponents suggest that such shifts in policy, coupled with an increase in the number of schools and/or students served, may have the opposite effect, i.e., dilute the program for those currently served and shift resources from those most in need of compensatory educational services to those with some, but less significant, educational problems. Theoretical arguments can be advanced to support a wide variety of predictions for the consequences of a change in district allocation policies. The major purpose of the Demonstration Study is to obtain information on the actual behavior of districts given the opportunity to remove existing restrictions.

With this major purpose established, seven research questions have been identified to guide the study, viz:

1. What changes in Title I allocation policy are made by each of the Demonstration districts under the waiver of federal regulations?
2. What effects do changes in Title I allocation policy have on the characteristics of students served by Title I and the other compensatory programs within the Demonstration districts?
3. What effects do changes in Title I allocation policy have on the instructional and support services experienced by students of different types within the Demonstration districts?
4. What effects do changes in Title I allocation policy have on the organization and administration of compensatory programs and the instructional services delivered within the Demonstration districts?
5. What is the reaction of parents to changes in Title I allocation policy within the Demonstration districts?

6. What effects do changes in allocation policy have on student achievement within the Demonstration districts?*

7. What are the costs and/or savings associated with changes in Title I allocation policy? What costs are non-recurring, such as those associated with planning, and what costs are recurring, such as those associated with testing and changes in program administration?

As noted above, this report focuses on the first three of these questions.

1.2 District Selection

The 13 LEAs involved in the Title I Demonstration are:**

Adams County #12, Colorado
Alum Rock, California
Berkeley County, West Virginia
Boston, Massachusetts
Charlotte-Mecklenburg, North Carolina
Harrison County, West Virginia
Houston, Texas
Mesa, Arizona
Newport, Rhode Island
Racine, Wisconsin
Santa Fe, New Mexico
Winston-Salem/Forsyth County, North Carolina
Yonkers, New York

These 13 LEAs were selected by NIE from among a group which wrote Demonstration proposals in the Spring of 1975. Thus, they are volunteers which were selected on the basis of proposal quality and regional distribution. In spite of this non-random selection process, the LEAs appear to be representative of a wide range of school districts. Their demographic characteristics are quite similar to those of the national

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*The fact that this question is relatively low on our list does not necessarily reflect its order of importance, but rather the limitations imposed upon our ability to answer it.

**Sixteen districts were selected by NIE to develop planning proposals. At the end of the 1975-76 planning year, three districts withdrew from the study.

probability sample of LEAs studies by NIE.* Almost every region of the country is represented in the Demonstration Study which also includes urban, suburban, small city, and rural districts. The LEAs vary widely in size from Newport (6,165 students) to Houston (291,369 students). If anything, they underrepresent the smallest LEAs. Participating districts also vary in average income, the incidence of poverty, and the prevalence of minorities among their students.** Thus, while it is not possible to treat these districts as a formal sample and to simply generalize to all school districts in the country from the results of this study, it is possible with careful analysis to draw inferences about the likely implications of varying policy options for a range of similar types of school districts.

The districts volunteering for the Demonstration research chose to do so for a number of reasons. In order of frequency, they were:

- Desire to serve both schools and students on the basis of educational disadvantage***
- Desire to continue to serve students who are no longer eligible for services because of desegregation****

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*Demonstration Studies of Funds Allocation Within Districts (Washington, D.C.: National Institute of Education, Department of Health, Education and Welfare, September 30, 1977).

**For a fuller description of these demographic characteristics, see B. Hubbell, G. Takata, and M. Hennessy, A Comparison of Demographic Characteristics of Demonstration Title I School Districts with National Estimates (Abt Associates Inc.: Cambridge, Mass., September 9, 1976).

***This issue was raised by six districts--Adams County #12, Boston, Charlotte, Harrison County, Mesa, and Santa Fe.

****This issue was initially raised by five of the six districts that have desegregated since 1970--Racine, Charlotte, Winston-Salem, Boston, and Houston. Though the sixth, Newport, did not mention this issue in its application, desegregation apparently was a factor in its final decision to serve all schools.

- Desire to eliminate the "stigma" of Title I as a special poverty or minority program*
- Desire to eliminate the distributional inequities caused by the lack of reliability and/or validity of available poverty indices**
- A general preference for achievement measures over poverty as funds allocation criteria***
- Desire to make programmatic changes that increase the efficiency of service delivery****

Based on these reasons for participating and given a year for planning, a number of alternative allocation procedures were selected by the districts. These are described in the following section.

1.3 Allocation Changes Adopted by the LEAs

As noted above, the major allocation changes made by the districts related to school and student eligibility decisions and resource distribution among students and schools. This section describes the former changes; changes in resource distribution are discussed in Chapter 2.

1.3.1 School Eligibility

During 1975-76, each of the Demonstration districts used poverty criteria to qualify schools. During 1976-77, all districts modified school eligibility rules, but in different ways.

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*Five districts--Charlotte, Newport, Mesa, Winston-Salem, and Yonkers--cited this rationale.

**Four districts--Berkeley County, Boston, Mesa, and Winston-Salem--expressed concern that standard poverty measures may be outdated and may lack reliability or validity.

***Three districts--Mesa, Houston, and Winston-Salem--expressed a preference for achievement criteria over poverty criteria.

****Berkeley County, Alum Rock, and Yonkers regarded the Demonstration projects as an opportunity to improve their compensatory education services while reaching more children within schools.

Six districts (see Table 1.1) chose to target low-achieving students directly regardless of the schools they attended and, thus, to serve all schools within given grade levels. These are referred to as "direct allocation" districts.

Two districts chose to rank schools based on the proportion of students with low reading test scores and to target schools for service according to a procedure similar to that employed using poverty criteria. These are referred to as "achievement allocation" districts. In these districts, some schools which were served in 1975-76 did not receive any Title I services in 1976-77. Other schools received services for the first time.

Three districts retained the standard practice of targeting schools based on the proportion of students who are poor. Two of these three added schools based on the proportion of students with low test scores--Boston and Houston. One continued to rank schools exclusively by poverty--Berkeley County.

Finally, two districts made primarily intra-school changes. These districts targeted all or almost all students in some schools and only those with low test scores in others. With respect to school eligibility, Alum Rock chose to serve all elementary and middle schools while Yonkers continued to rank schools by poverty.

It should be noted here that the selection of these options is related to district characteristics, particularly size. No large districts chose the direct allocation option, nor did any of them seriously consider this option during planning. On the average the direct allocation districts added ten schools to those already served by Title I. In the four largest districts a similar policy would have meant adding an average of 54 schools per district. There is no doubt that the extension of Title I services to all schools in the larger districts would present very different administrative problems than they do in the smaller ones.

TABLE 1.1

ALLOCATION POLICIES ADOPTED BY THE
THIRTEEN DEMONSTRATION DISTRICTS IN 1976-77

ALLOCATION POLICY	DISTRICT
DIRECT ALLOCATION Six Districts Serve Low Achieving Students in All Schools Within Given Grade Levels	Adams County #12, Colorado (elementary grades 1-3) Harrison County, West Virginia (elementary schools) Mesa, Arizona (elementary, junior high, high schools) Newport, Rhode Island (elementary schools) Racine, Wisconsin (elementary schools) Santa Fe, New Mexico (elementary schools)
ACHIEVEMENT ALLOCATION Two Districts Rank Schools by Achievement and Serve Those Below a Cut-Off	Charlotte, North Carolina (all elementary schools with 35% or more of the students performing below the 30th percentile) Winston-Salem, North Carolina (all elementary schools with 40% or more of the students performing below the 35th percentile)
POVERTY AND/OR ACHIEVEMENT ALLOCATION Three Districts Rank Schools by Poverty; Two Add Schools Ranked by Achievement	Berkeley County, West Virginia (elementary schools) Boston, Massachusetts (elementary schools) Houston, Texas (elementary schools)
STUDENT TARGETING EXPERIMENT Two Districts Make Intra-School Changes	Alum Rock, California (elementary and middle schools) Yonkers, New York (elementary schools)

1.3.2 Student Eligibility

During the first or baseline year, the Demonstration districts, like other districts in the country, used achievement criteria to qualify students as eligible to receive Title I services and generally gave priority to the lowest achieving eligible children. During the second year, ten of the districts continued to follow the same general procedure, and three districts used new student eligibility procedures. In Alum Rock and Yonkers, all students in certain Title I schools, rather than only the lowest achieving students, were eligible to receive services. Newport redefined "educational need" to include an estimate of the student's learning potential. Students with the highest discrepancy between potential and achievement (and with achievement below the 50th percentile) received services first.

1.4 Organization of the Report

This report focuses on the effects of these allocation changes on the numbers of schools and students served by Title I and on the characteristics and experiences of these students. As such, it addresses the first three of the seven research questions which guide the Demonstration study. The remainder of the report is organized around these three questions.

Chapter 2 provides additional information on the allocation changes made by the districts (Question 1). Particular attention is paid to changes in numbers of schools and students served and to resource distribution in the first and second years of the study. The change in numbers of teachers involved in Title I is used as an indicator of the resources available in the districts. Appendix B, which is the companion to this chapter, provides information on current regulations with respect to eligibility and targeting procedures.

Chapter 3 is concerned with the effects of the allocation changes on the characteristics of students served by

Title I (Question 2). This chapter focuses particularly on changes in the achievement level, the poverty status, and the minority status of students served by Title I. Information on sample sizes and data sources used in the student characteristics analysis, as well as detailed by-site descriptions of the data summarized in the chapter, are presented in Appendix C.

Chapter 4 summarizes the effects of the Demonstration on the services received by Title I students (Question 3). Since the large majority of Title I resources available to the Demonstration districts are allocated to the elementary grades and to language arts instruction, the receipt of such instruction by elementary students is emphasized. The effects of the Demonstration on other instructional services, by-site descriptions of the data summarized in the chapter, and relevant additional technical information are presented in Appendix D.

To address the research questions, direct comparison of Title I students in 1975-76 and 1976-77 was supplemented by a comparison of non-Title I students over the same two years. This second contrast was used to determine whether the differences observed between the Title I students over time were due to the Demonstration, or whether they were changes that occurred for the district as a whole. Detailed discussions of the sampling plan and analytic methods utilized in the research are provided in Appendix A.

2.0 EXPANSION OF PROGRAMS IN DEMONSTRATION DISTRICTS

All of the Demonstration districts served more schools and/or students in the second year of the study. To accommodate such increases, many districts also increased the amount of resources spent on Title I. It is not surprising that districts would increase their compensatory education expenditures to accommodate program expansion. In the absence of a funding increase, the decision to expand would require a reduction in the intensity of, or a change in the character of, the services offered to participating students. What is surprising is that districts were able to find the additional funds to support this expansion.

One of the basic assumptions underlying the Demonstration Study was that participants would implement their alternative intra-district allocation strategies using their standard Title I funds allocations. Since no additional funds were provided to support program expansion, and since standard Title I allocations generally remain constant over time, it was expected that districts would have roughly the same amount of resources to spend in both years of the study. Perhaps one of the most interesting, albeit surprising, findings of the study was that districts actually have a great deal of discretion with respect to the amount of money they may spend on Title I. In addition to their standard allocations, they may use a variety of other avenues to expand scope, including: 1) unspent Title I funds carried over from the previous year; 2) other federal, state, and local dollars; and 3) the reduction or elimination of non-essential activities or services.

In the remainder of this chapter we examine the changes made by each of the Demonstration districts in the number of schools and students served by Title I. We also discuss the extent to which the increase in expenditures appears to match the increase in students, as well as the possible sources of the additional funds. Since most of the Title I resources in these districts are spent at the

elementary level, discussion of such changes is limited to the elementary grade span.

The net effect of these shifts in the intensity and nature of the services received by program participants is the subject of Chapter 4.

2.1 Changes in Schools and Students

The number and percentage of elementary schools served by Title I in 1975-76 and 1976-77, as well as the change in percentage across the two years are displayed in Table 2.1. All districts but one elected to increase the number of schools served in 1976-77. This is particularly true of those districts which chose to provide services to low-achieving students in all elementary schools. For these sites, the proportional increase in schools served ranged from 20% to 433%. In the two districts substituting achievement criteria for poverty criteria, the proportional increase was 16% and 85%, respectively. Finally, in all but one of the remaining districts, the proportional change was relatively small, ranging from 0% to 14%. The 100% increase in Alum Rock did not represent a real change in the percentage of schools receiving compensatory services, but rather redistribution of funds from several sources.

Changes in the number of students served by the Demonstration districts are displayed in Table 2.2. In all but two--Charlotte and Houston--the number of students actually served increased in 1976-77. Once again, the most dramatic increases occurred in those districts electing to serve low-achieving students in all elementary schools. For these districts, the proportional increase in students served ranged from 29% in Harrison County and Mesa to 240% in Adams County. The sizable increase in Alum Rock is again attributable to administration/bookkeeping rather than programmatic changes.

Table 2.2 also displays the changes projected by the districts before the school year began. On the average, the number of students actually served was slightly smaller than the

TABLE 2.1

CHANGES IN THE NUMBER OF PUBLIC ELEMENTARY SCHOOLS SERVED BY TITLE I IN THE DEMONSTRATION DISTRICTS

DISTRICT/CRITERIA	1975-76			1976-77			PROPORTIONAL INCREASES IN SCHOOLS SERVED BY TITLE I (7) - (5-2)/2
	NUMBER OF PUBLIC ELEMENTARY SCHOOLS (1)	NUMBER SERVED BY TITLE I (2)	PERCENT SERVED BY TITLE I (3)	NUMBER OF PUBLIC ELEMENTARY SCHOOLS (4)	NUMBER SERVED BY TITLE I (5)	PERCENT SERVED BY TITLE I (6)	
Districts that serve low-achieving students in all elementary schools							
Adams County #12	16	3	19	16	16	100	433
Harrison County	30	25	83	30	30	100	20
Mesa	25	14	56	25	25	100	79
Newport	9	3	33	9	9	100	200
Racine	33	18*	48	33	33*	100	106
Santa Fe	16	11	69	16	16	100	45
Districts that rank schools by achievement and serve fewer than all elementaries							
Charlotte	73	49	67	75**	57	76	16
Winston-Salem	37	13	35	37	24	65	85
Districts that rank schools primarily by poverty							
Berkeley County	13	10	77	14**	11	79	10
Boston	117	65	56	108**	74	69	14
Houston	169	54	32	169	58***	34	7
Districts making primarily intra-school changes							
Alum Rock†	19	9	47	18**	18	100	100
Yonkers	31	9	29	25**	9	36	0
						AVERAGE	86

*First-year schools in Racine are counted in the same way as 2nd-year schools. Note that the 33 schools served in Year 2 include four schools served with state compensatory education funds in the same manner as Title I schools. These schools will be funded by Title I in 1977-78 when state funds become unavailable.

**Changes in total number of elementary schools across years should be noted. These are due to school openings or closings.

***Five schools supported with state compensatory education funds are not counted in this total, even though they were made eligible under state-granted waivers, because other schools in the district also receive state funds.

†As Alum Rock shifted Title I money into new schools in the 2nd year, it took from them equal amounts of money from other sources. There was no real change in the scale of the compensatory program in terms of schools served.

TABLE 2.2

CHANGES IN THE NUMBER OF PUBLIC ELEMENTARY STUDENTS SERVED BY TITLE I IN THE DEMONSTRATION DISTRICTS

DISTRICT/CRITERIA	NUMBER OF PUBLIC ELEMENTARY STUDENTS SERVED BY TITLE I IN 1975-76* (1)	NUMBER OF PUBLIC ELEMENTARY STUDENTS SERVED BY TITLE I IN 1976-77** (2)	ACTUAL PROPORTIONAL CHANGE JUNE 1977 (3) = (2-1)/1	PROJECTED PROPORTIONAL CHANGE DECEMBER 1976*** (4)
Districts that serve low-achieving students in all elementary schools				
Adams County 812	174	591	240%	240%
Harrison County	1,409	1,823	29%	88%
Mesa	2,494	3,229	29%	-39%
Newport	175	445	154%	154%
Racine	760†	1,552†	104%	158%
Santa Fe	735	1,149	56%	75%
Districts that rank schools by achievement and serve fewer than all elementaries				
Charlotte	6,440	6,156	-4%	6%
Winston-Salem	1,812	3,310	83%	72%
Districts that rank schools primarily by poverty				
Berkeley County	630	1,106	76%	92%
Boston	10,130	10,572	4%	-7%
Houston	19,518	17,854	-9%	19%
Districts making primarily intra-school changes				
Alum Rock	3,962	9,560	141%	40%
Yonkers	2,375	2,855	20%	62%
		AVERAGE	71%	74%

*Figures updated from December report based on subsequent site visits.

**Based on district end-of-year reports submitted to NIE in June 1977.

***Projected percent change is derived from projected change in number of students served as reported in Evaluating Compensatory Education: An Interim Report on the NIE Compensatory Education Study, NIE, December 1976.

†Adjusted to incorporate students served in the new number of schools shown in Table 2.1.

number projected. In four sites, however, initial projections were exceeded by final counts--Mesa, Winston-Salem, Boston, and Alum Rock.

Table 2.3 displays changes in the numbers of students per school served by Title I from 1975-76 to 1976-77. In six districts, the proportional increase in schools served was accompanied by an equal or greater proportional increase in students served. For these districts, the number of students served per school was maintained or increased. Unless funding were increased, this would have the effect of lowering per-pupil expenditures, as described above. For seven districts, the proportional increase in schools served was not accompanied by a corresponding increase in students served. In these districts, the number of students per school decreased, in part offsetting the expansion of the Title I program to additional schools.

2.2 Changes in Resource Distribution

One outcome of changes in school and student selection criteria was a change in resource distribution across schools in the district. In 1975-76 many of these districts allocated resources to schools based on the number or percentage of low-income students in each school. Thus, the resources per low-achieving student were apparently unequal across schools. In 1976-77, 12 of the 13 districts allocated resources to schools based on numbers of low-achieving students in each school. While the accuracy of this distribution varied by district, it had the general effect of equalizing resources per low-achieving student across schools in the district.

Participation in the Demonstration program did not change the size of the Title I grant received by a district. As noted above, however, most districts spent more on the elementary component of their Title I projects in the second year than in the first. One indicator of the increase in elementary expenditures was the rise in the number of compensatory teaching staff assigned to teach Title I students in elementary schools.

TABLE 2.3

CHANGES IN THE NUMBER OF PUBLIC ELEMENTARY STUDENTS PER SCHOOL SERVED BY TITLE I IN THE DEMONSTRATION DISTRICTS

DISTRICT/CRITERIA	AVERAGE NUMBER STUDENTS SERVED PER SCHOOL* 1975-76 (1)	AVERAGE NUMBER STUDENTS SERVED PER SCHOOL* 1976-77 (2)	CHANGE IN AVERAGE NUMBER SERVED PER SCHOOL (3) = (2-1)	PROPORTIONAL CHANGE IN AVERAGE NUMBER SERVED PER SCHOOL (4) = (2-1)/1
Districts that serve low-achieving students in all elementary schools				
Adams County #12	58	37	-21	-36%
Harrison County	56	61	5	9%
Mesa	178	129	-49	-28%
Newport	58	49	-9	-16%
Racine	42	47	5	12%
Santa Fe	67	72	5	7%
Districts that rank schools by achievement and serve fewer than all elementaries				
Charlotte	131	108	-23	-18%
Winston-Salem	139	138	-1	-1%
Districts that rank schools primarily by poverty				
Berkeley County	63	101	38	60%
Boston	156	143	-13	-8%
Houston	361	308	-53	-15%
Districts making primarily intra-school changes				
Alum Rock	440	531	91	21%
Yonkers	264	371	53	20%
			AVERAGE	-1%

*Average number of students served per school in each year is obtained by dividing the total number of elementary students served by Title I in each year.

Table 2.4 shows the proportional changes in comepnsatory teachers in each district.* The average increase was approximately 44%, which, though large, did not match the 71% increase in number of students served. Thus, it would appear that the additional resources did not fully offset the expansion to more students and that a reduction in the services received by students might be expected.

The source(s) of the additional funds required to support the increase in teaching staff will be described fully in subsequent reports, after end-of-year expenditure data have been analyzed. Preliminary analysis suggests, however, that the additional money must have come in part from sources other than Title I (i.e., other federal, state compensatory, or local funds), or from the reduction of services in non-elementary grade spans.

The Demonstration districts' Title I grants in the second year were, on the average, 3% higher than in the first year. In addition, unspent Title I funds could be carried into 1976-77 from the previous year. The extra funds available from both sources meant that, on the average, districts had 27% more Title I money available in the second year than they had in the first. (See Table 2.5.) Thus, even if districts had spent all available Title I funds in 1976-77 they could not have fully supported the staff increases described above. Additional funding and/or modification of non-elementary programs was required.

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*Because some districts supplied only total numbers of staff hired, and not full-time equivalents, further analysis will be required to convert the data in Table 2.4 to full-time equivalent staff.

TABLE 2.4

CHANGES IN ELEMENTARY SCHOOL COMPENSATORY TEACHING STAFF ASSIGNED TO TITLE I STUDENTS*

DISTRICT/CRITERIA	NUMBER OF STAFF		PROPORTIONAL CHANGE
	1975-76 (1)	1976-77 (2)	(3) = (2-1)/1
Districts that serve low-achieving students in all elementaries			
Adams County #12	5	12	140%
Harrison County	44	44	0%
Mesa	41	59	44%
Newport	7	19	171%
Racine	44	98	123%
Santa Fe	24	30	5%
Districts that rank schools by achievement and serve fewer than all elementaries			
Charlotte	236	249	6%
Winston-Salem	67	114	70%
Districts that rank schools primarily by poverty			
Berkeley County	41	40	-2%
Boston	438	515	18%
Houston	471	438	-7%
Districts making primarily intra-school changes			
Alum Rock	52	45	-13%
Yonkers	86	86	0%
		AVERAGE	44%

*From district end-of-year reports submitted to NIE, June 1977.

TABLE 2.5

TITLE I FUNDS AVAILABLE IN THE DEMONSTRATION DISTRICTS IN 1976-77 RELATIVE TO TITLE I EXPENDITURES IN 1975-76*

DISTRICT/CRITERIA	TITLE I FUNDS (FROM PART A, 1975-76 PLUS CARRYOVER, 1974-75) SPENT IN 1975-76 (1)	TITLE I FUNDS (FROM PART A, 1976-77 PLUS CARRYOVER, 1975-76) AVAILABLE IN 1976-77 (2)	PROPORTION OF FUNDS AVAILABLE IN 1976-77 ABOVE 1975-76 EXPENDITURES (3)=(2-1)/1
Districts that serve low-achieving students in all elementary schools			
Adams County #12	151,677	179,696	18%
Harrison County	393,562	858,388	118%
Mesa	368,218	452,572	23%
Newport	281,580	488,203	73%
Racine	1,072,946	1,249,876	16%
Santa Fe	667,625	689,441	3%
Districts that rank schools by achievement and serve fewer than all elementaries			
Charlotte	2,271,435	2,865,863	26%
Winston-Salem	1,502,388	2,353,108	57%
Districts that rank schools primarily by poverty			
Berkeley County	302,104	312,187	3%
Boston	8,509,642	9,726,470	14%
Houston	8,959,687	9,991,470	12%
Districts making primarily intra-school changes			
Alum Rock	910,872	947,769	4%
Yonkers	1,744,663	1,509,104	-15%
		AVERAGE	27%

*From district end-of-year reports, June 1977.

3.0 STUDENT CHARACTERISTICS AND COVERAGE

3.1 Introduction

This chapter describes the results of the changes in targeting procedures initiated within the 13 Demonstration districts.

Targeting regulations and the procedures followed by school districts to implement those regulations are intended to insure that Title I services are delivered to the most disadvantaged students. The targeting of schools under current regulations is aimed at delivering services to schools attended by large numbers of students from poor families. The targeting of students under current regulations is aimed at delivering services to educationally disadvantaged students within those schools. The results of our analysis of data from 1975-76 indicate that under these regulations Title I students are more likely to be from poor families, to be educationally disadvantaged, and to be minority group members than non-Title I students.

The purpose expressed by the districts for changing these procedures was to serve low-achieving students regardless of the poverty level of the school they attended. The analyses were designed to answer the question, "What changes are there in the types of students who receive Title I services?" "Types of students" includes the following comparisons: students from poor families versus those from more affluent families, students with low reading achievement scores versus those who do better, and minority versus majority students.* Thus, different types of disadvantage are described.

Both school and student targeting procedures are changed by the Demonstration. Both procedures affect the characteristics of students served by Title I and the coverage of specific student groups by Title I. Figure 3-1 is a pie

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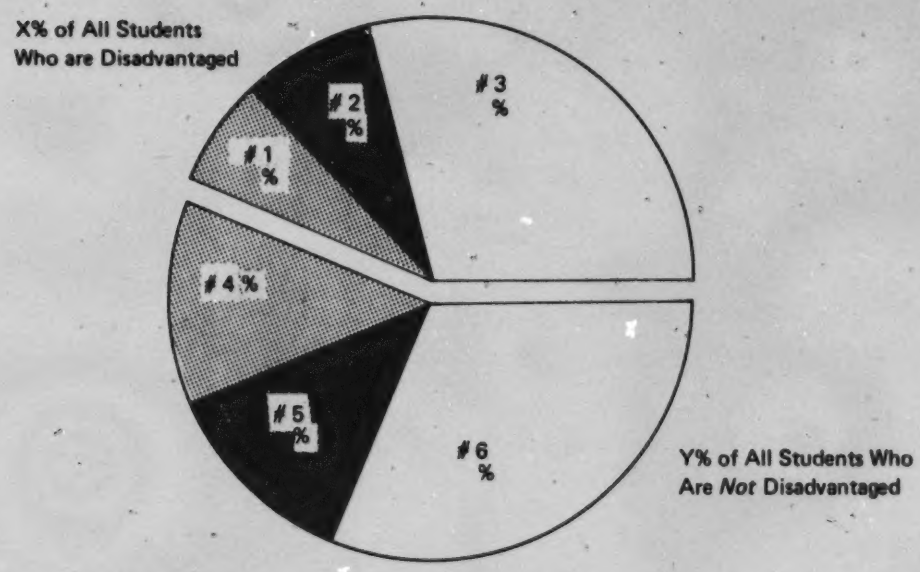
*Student poverty is measured both using free lunch eligibility and actual family income; low reading achievement scores are analyzed both in terms of students reading one year or more below grade level and one-half year below grade level.

FIGURE 3-1

PIE CHART INDICATING THE DIVISION OF THE ENTIRE ELEMENTARY SCHOOL POPULATION INTO THOSE WHO ARE DISADVANTAGED AND THOSE WHO ARE NOT AND SHOWING THE ALLOCATION OF TITLE I SERVICES ACROSS THOSE GROUPS*



= Students Served by Title I

= Students in Title I Schools Who Do Not Receive Title I Services

= Students in Non-Title I Schools

$$\text{* Characteristics} = \frac{\#1}{\#1 + \#4} \quad ; \text{ Coverage} = \frac{\#1}{\#1 + \#2 + \#3}$$

chart which illustrates the results of school and student targeting procedures. First, Figure 3-1 divides the entire student population in the Demonstration district into those who are disadvantaged and those who are not. This division is indicated by a separation of the two segments. Second, Figure 3-1 divides each of these two groups into (1) those who are served by Title I, (2) those who are in Title I schools but do not receive Title I services, and (3) those who attend non-Title I schools. This is indicated by the codes at the bottom. Thus, there are six student groups indicated by the pie chart, each of which is assigned a number. The question of what are the characteristics of Title I students is addressed by adding the students in Groups #1 and #4 and computing the proportion of this total in Group #1.

> The question answered by the characteristics analysis is, "What proportion of Title I-served students are disadvantaged?"

The question of what proportion of the disadvantaged students receive Title I services, coverage, is addressed by adding Groups #1, #2, and #3 and computing the proportion of this total in Group #1.

> The question answered by the coverage analysis is, "What proportion of all students who are disadvantaged receive Title I services?"

The questions in which we are most interested pertain to change. Thus, the analysis of student characteristics is a comparison of the proportion of students served by Title I whose reading level is a year or more below grade level during 1975-76 with the same proportion in 1976-77. The analysis of coverage is a comparision of the proportion of all students whose reading level is a year or more below grade level who received services in 1975-76 versus the same proportion in 1976-77.

In the following sections, we first describe the overall approach to the analysis. This includes a brief description of the instruments and variables and of the analytic procedures used. The characteristics analysis is then presented, followed by the coverage analysis. Finally, the results of the characteristics and coverage analyses are related to each other to provide a more complete picture of the effects of changes in the allocation policies.

3.2 Method

3.2.1 Instruments and Variable Groups

The analysis of changes in the characteristics of the Title I and non-Title I populations was based on data about the child's academic achievement level, poverty status, and ethnicity. These data were derived from three instruments: a Classroom Roster, a Student School Record Information Form (SSRIF), and a Parent Interview.

The Roster was completed by classroom teachers of all third and fourth grade students in sampled schools. The sample sizes for this instrument are given in Appendix C. These sample sizes are very large, represent substantial proportions of the target populations, and therefore provide stable estimates of the characteristics in question. Since the SSRIF and Parent Interview samples were somewhat smaller than these (see below), the Roster analyses were felt to provide the most accurate picture of the true changes in the student populations. The following Roster variables are discussed in this report:

- Achievement: Reading achievement as determined by teacher judgment was given as a five point scale which ranged from "one year or more below grade level" to "grade level or better."
- Poverty: A dichotomous (yes, no) variable based on the child's participation in federally supported lunch programs.
- Race/Ethnicity: A dichotomous variable where all non-White and Spanish speaking children were assigned "minority" status.

The Student School Record Information Form (SSRIF) was also completed by classroom teachers but for selected Roster students. Sample sizes for this instrument are presented in Appendix C. The SSRIF was designed to elicit detailed information about the students' demographic characteristics and the kinds of programs provided to students. In addition, an attempt was made to obtain achievement test information from local school personnel. These achievement test data, however, were derived from existing records. Because of this, there was no consistency in testing times or in the types of tests that were administered.

The SSRIF data, since they were derived from smaller samples of children, were used primarily to supplement the Roster analysis. From the SSRIF, two variables were selected for use in the characteristics analysis, i.e.:

- Achievement: This consisted solely of data from the district's own testing program which varied in procedure and instrumentation from district to district.
- Poverty: A dichotomous variable (yes, no) based on the AFDC status of a child's family.

Parent interviews were completed for a smaller subsample of families. Because of the smaller sizes of these samples, and because of the greater possibility of non-response bias, the poverty variable derived from the Parent Interview instrument was used only to supplement the primary analyses. The variable used was:

- Poverty: An Orshansky index based on the income and size of the family.

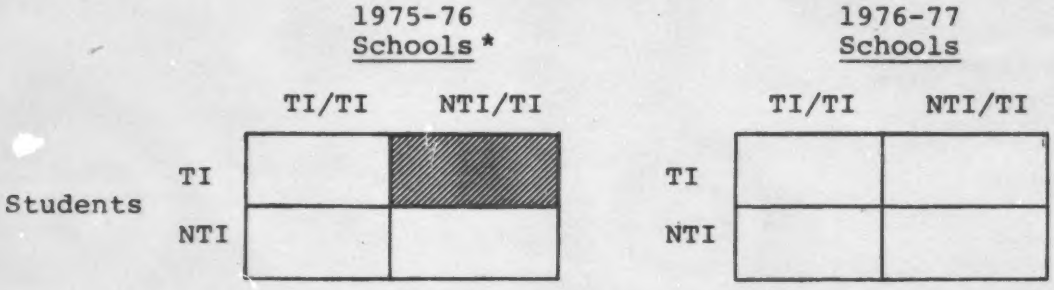
More details on this variable and the variables derived from each of the other two instruments are given in Appendix C.

3.3 Design and Analysis

Since this study was intended as an examination of the effects of allocation strategies adopted during the Demonstration, the analytic design was necessarily shaped by

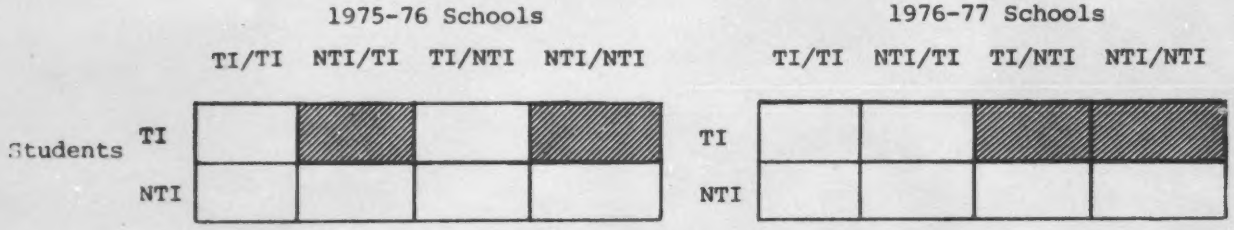
the districts' allocation policies. Given these policies (see Chapter 1) we were able to identify two major design patterns and several which were unique.

In six of the sites (Adams County #12, Harrison County, Mesa, Newport, Racine, and Santa Fe), Title I services were extended to all schools during the Demonstration. These "direct allocation" sites give us the following general pattern of subgroups:



The shaded cell indicates the logical impossibility of Title I students in non-Title I schools.

Two of the sites (Charlotte and Winston-Salem) also extended Title I to other schools during the Demonstration. They did not, however, extend services to all schools. Moreover, as a result of re-ranking, some schools in these districts lost Title I services. These two sites were called "achievement allocation" sites and resulted in the following general patterns:



*TI refers to Title I; NTI to non-Title I. TI/TI refers to schools which offered Title I services in both years of the study; NTI/TI refers to schools that offered Title I services in 1976-77 only.

The remaining sites (Alum Rock, Berkeley County, Boston, Houston, and Yonkers) elected to change in other ways. In some cases this involved the application of poverty criteria in addition to, or instead of, achievement criteria in the school selection process. In others, selection at the student level, but not the school level, was involved. For the purposes of this report it is important to note here that all sites except Berkeley County had schools which gained Title I services.

Given this wide variation in new allocation procedures, a large number of comparisons were of theoretical interest, particularly in the latter group of sites. The actual comparisons made among students and schools are given in Appendix A. For this report we were concerned mainly with a few key comparisons which were applicable in all sites and which would give an overall picture of the types of changes in student characteristics which occurred during the Demonstration.

The primary comparison of interest was between the Title I students in 1975-76 and Title I students in 1976-77. In most cases this involved a difference between the proportions of each group that had a particular characteristic, e.g., the proportions that had low levels of reading achievement.

This comparison was supplemented by a comparison among non-Title I students for the two years. The point of this comparison was to insure that the changes among the Title I groups were due to the Demonstration and not to environmental effects occurring within the districts, such as redistricting, migration, or population shifts. Basically, the changes for non-Title I students should be different from the changes for Title I students. If they are the same, a similar non-Demonstration related factor could be influencing both groups. Changes which could be related to such a non-Demonstration factor are termed "systemic" changes, as they seem to result from changes in the system, e.g., shifts in population characteristics, rather than changes in Title I allocation.

Certainly other differential factors could be influencing the changes, and we might in these cases be wrongly attributing observed results to the Demonstration. While all possible alternatives could not be discounted, one other non-Demonstration related source of differential change was examined.

Change in the composition of the student population within each type of school was explored. Schools which had Title I services in both years of the study were of particular concern since changes in student composition within them would result in observed changes in the characteristics of Title I students, even though no changes were made in the student selection process. The comparison of the changes in student characteristics in such schools provided an explicit test of the degree to which this non-Demonstration change occurred.

The analysis was also designed to address differential change across the various school types. It might, for instance, happen that the schools added as a result of changed allocation practices were markedly different from the original Title I schools, e.g., had fewer minority students. Generally, in this situation, a pooling of the two school types gives an estimate which is representative of neither and partially obscures the actual results. Thus, a comparison of old Title I and newly added schools was done to check on the possibility that school differences might be masked by the overall effects.

These two types of comparisons are best interpreted in conjunction with other site specific descriptions. They are, therefore, presented with the site summaries in Appendix C. There they are used to supplement descriptions of the specific findings in each site.

All these analyses were accomplished using planned comparisons in the analysis of variance tradition. The details of the approach and the actual comparisons are given in Appendix A.

3.4 Changes in Student Characteristics

With the possible exception of poverty, the alternative allocation processes adopted by the Demonstration districts appear to result in relatively small changes in the characteristics of Title I students. Where significant changes do occur, they suggest that the policy choices made by these districts lead to an increase in the percentage of Title I students who are low achieving and a decrease in the percentage of Title I students who are poor. The results with respect to minority group membership are minimal. Table 3.1 summarizes changes in the characteristics of Title I students during the first two years of the study with respect to all three variables.

Columns 1-3 summarize the data with respect to percentage of low achieving Title I students, where low achieving is defined as reading one or more years below grade level. Before and during the implementation of waivers, a majority of Title I students performed below this achievement level in virtually all sites. On the average, there was a small increase in the percentage of Title I students who are low achieving across the 13 LEAs. There is variability, however, in both the size and direction of changes in achievement levels across districts. In five of the 13 sites, the percentage of Title I students who were low achieving increased significantly during the first implementation year. In three of these sites--Mesa, Santa Fe, and Alum Rock--the increase was unconfounded by district-wide or intra-district population shifts. In the two others--Winston-Salem and Yonkers--changes were confounded by one or both of these factors. Two sites showed significant losses in the percentage of Title I students who were low achieving--Charlotte and Berkeley County. In both cases, however, the losses were confounded by population shifts.

Columns 4-6 summarize the data with respect to percentage of Title I students who are poor, where poverty is defined as participating in the free lunch program. In 1975-76, the average percentage of such students was 68%; in 1976-77, it was 62%. In both years, however, there was a

TABLE 3.1

CHANGES IN THE PERCENTAGE OF TITLE I STUDENTS WHO ARE LOW ACHIEVING, POOR, AND/OR MINORITY GROUP MEMBERS

DISTRICT/CRITERIA	PERCENTAGE LOW ACHIEVING[1]			PERCENTAGE POOR[2]			PERCENTAGE MINORITY GROUP MEMBERS[3]		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Districts that serve low-achieving students in all elementary schools									
Adams County #12	83	74	-9	24	21	-3	19	26	7
Harrison County	67	68	1	65	58	-7*	6	4	-2
Mesa	44	62	18*	43	32	-13*	29	24	-5
Newport	53	66	13	77	62	-15	21	24	3
Racine	60	58	-2	44	42	-2	43	43	0
Santa Fe	64	72	8*	86	75	-11*	87	83	-4
Districts ranking schools by achievement & serving fewer than all elementary schools									
Charlotte	83	79	-4[c]	73	61	-12*	67	60	-7*
Winston-Salem	72	88	16[c]	64	71	7*	54	62	8*
Districts ranking schools primarily by poverty									
Berkeley County	79	67	-12[c]	57	57	0	11	8	-3
Boston	65	64	-1	-91	92	1	73	73	0
Houston	67	67	0	-83	85	2	99	98	-1
Districts making primarily intra-school changes									
Alum Rock	49	54	5*	-89	78	-11*	87	78	-9[c]
Yonkers	61	72	11[c]	85	72	-13[c]	89	70	-19*
Average	65	69	4	68	62	-6	53	50	-3

[1]Low achieving is defined here as reading one year or more below grade level, based on Classroom Roster information.

[2]Poverty is defined here as participating in the free lunch program, based on Classroom Roster information.

[3]Minority group membership is defined here as all other races besides White/not of Hispanic origin, based on Classroom Roster information.

*Significant at $p \leq .05$.

[c]Significant at $p \leq .05$, but confounded by changes in the non-Title I group or in the distribution of students.

great deal of variability in this percentage across districts. In Adams County #12, for example, less than 25% of the Title I students participated in the free lunch program in either year. On the other hand, in Santa Fe, Boston, Houston, and Alum Rock, over 75% of the Title I students participated in the free lunch program in both years.

On the average, there was a small and fairly consistent decrease over time in the percentage of Title I students who were poor. In nine of the 13 districts, the proportion of Title I students participating in the free lunch program decreased during the first implementation year. In five of these, the decrease was statistically significant and unconfounded by population shifts. In only one site--Winston-Salem--was there a statistically significant increase in the proportion of Title I students who were poor.

Columns 7-9 summarize the changes in percentage of Title I students who were minority group members during the first two years of the Demonstration. On the average, approximately half the Title I students in both years were minority group members. Once again, however, there was large variation across sites. Harrison and Berkeley Counties had a small proportion of such students in either year; Houston had nearly 100% of such students in both years.

On the average, there was a small decrease in the percentage of Title I students who were minority group members. By-site changes are also generally small in size and variable in direction. Only three sites display statistically significant changes that are unconfounded by population shifts. Of these, two show decreases in percentage minority--Charlotte and Yonkers--and one--Winston-Salem--shows an increase.

<u>These results suggest that across the 13 LEAs there appears to be a slight "tradeoff" between serving low achieving and economically poor students. That is, as one targets services for one group, the services received by the other group may decline</u>.

With four possible exceptions, as the percentage of low achieving students increases, the percentage of poor students decreases in each site. The exceptions are Charlotte, Winston-Salem, Adams County #12, and Berkeley County (see Figure 3-2). In the former two sites, it appears that a change in one characteristic is accompanied by a corresponding or parallel change in the other. In the latter two sites, there are large decreases in the percentage of low achieving students, but no change in the percentage poor.

3.4.1 Additional Data on Changes in the Achievement Levels of Title I Students

The data summarized above revealed that alternative allocation processes resulted in small increases in the percentage of Title I students who read one year or more below grade level in three of the 13 Demonstration sites. These data were based on a relatively stringent definition of "low achievement" reflecting teacher judgment of student performance. In this section, two additional questions are addressed:

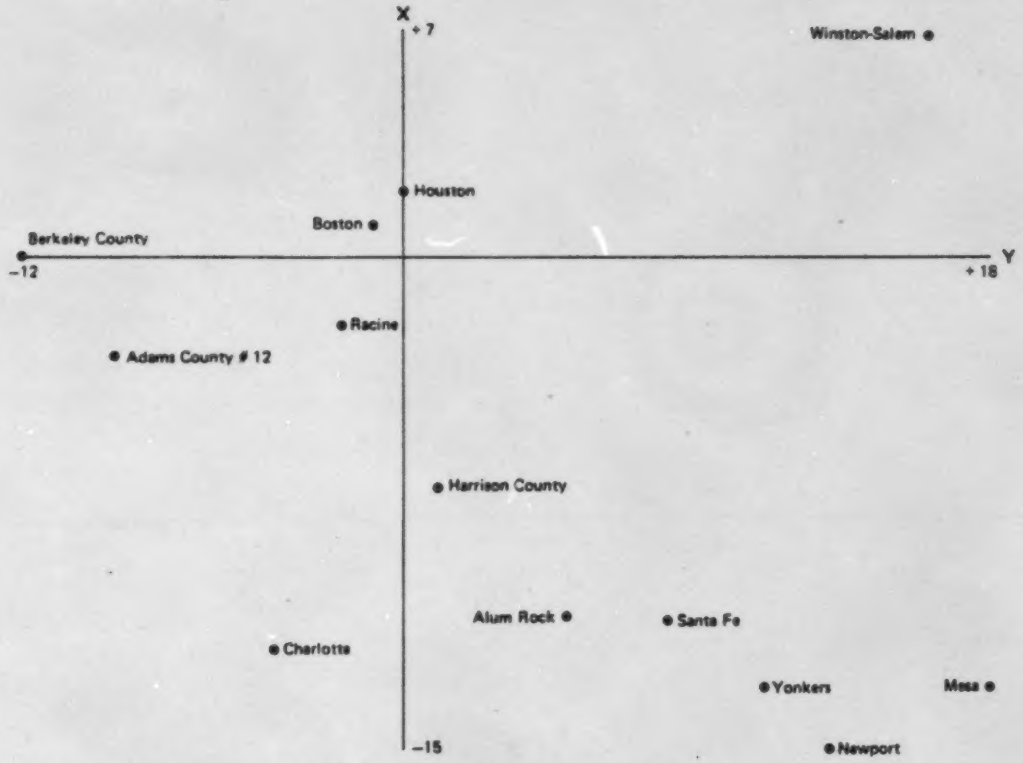
- Have the alternative allocation processes adopted by the Demonstration districts affected the proportion of Title I students who are nearly low achieving, i.e., those who are reading approximately one-half year below grade level, but not one year or more below?
- Are the findings based on teachers' judgment confirmed by actual changes in achievement test scores?

Table 3.2 displays changes in the percentage of Title I students reading at three different achievement levels in each of the Demonstration districts:

- one year or more below grade level;
- one-half year below grade level, but not one year or more below; and
- at grade level or above.

FIGURE 3-2

COMPARISON OF CHANGES IN THE PROPORTIONS
OF TITLE I STUDENTS WHO ARE EDUCATIONALLY DISADVANTAGED
AND WHO ARE ECONOMICALLY DISADVANTAGED



X = Change in proportion who are free lunch participants among Title I students

Y = Change in proportion who read one year or more below grade level among Title I students

52

TABLE 3.2

CHANGES IN THE PERCENTAGE OF TITLE I STUDENTS READING AT THREE DIFFERENT ACHIEVEMENT LEVELS

DISTRICTS	1 YEAR OR MORE BELOW GRADE LEVEL			APPROXIMATELY ½ YEAR BELOW GRADE LEVEL			AT GRADE LEVEL OR ABOVE		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Districts that serve low-achieving students in all elementary schools									
Adams County #12	83	74	–9	12	24	12	5	2	–3
Harrison County	67	68	1	26	25	–1	7	7	0
Mesa	44	62	18	26	23	–3	30	15	–15
Newport	53	66	13	30	25	–5	17	9	–8
Racine	60	58	–2	34	31	–3	6	11	5
Santa Fe	64	72	8	26	20	–6	10	8	–2
Districts that rank schools by achievement and serve fewer than all elementaries									
Charlotte	83	79	–4	13	14	1	4	7	3
Winston-Salem	72	88	16	23	11	–12	5	1	–4
Districts that rank schools primarily by poverty									
Berkeley County	79	67	–12	13	23	10	8	10	2
Boston	65	64	–1	20	23	3	15	13	–2
Houston	67	67	0	20	20	0	13	13	0
Districts making primarily intra-school changes									
Alum Rock	49	54	5	26	20	–6	25	26	1
Yonkers	61	72	11	18	12	–6	21	17	–4
Average	65	69	4	22	21	–1	13	11	–2

This table reveals several interesting findings about the achievement characteristics of Title I students within and across the first two years of the study.

First, the findings presented in Columns 4-6 reveal that in eight of the 13 districts there were losses in the percentage of Title I students who were "nearly low achieving." In one of these (Winston-Salem) the loss exceeded 10%. In four sites, there was an increase in the percentage of students performing at this level. In two of these (Adams County #12 and Berkeley County) the increase equalled or exceeded 10%.

Second, by adding the relevant columns, one finds that while only 65% of the Title I students were judged to be one or more years below grade level in reading achievement in 1975-76, fully 87% were performing at least one-half year below grade level. In 1976-77, during the implementation of waivers, the comparable figure was 90%. Thus Title I appears to have been serving low achieving students in both years.

Third, by examining the ninth column, one finds that the change in percentage of Title I students who read at grade level or above was relatively small in most of the Demonstration districts. An increase as large as 5% was found only in Racine; decreases exceeding 5% were found only in Mesa and Newport. In Mesa, the site with the largest reductions, changes in student targeting decisions were quite dramatic, with lower cut-off levels specified and reduced emphasis on teacher judgment in the student selection process.

Given these findings, it is interesting to ask whether there is a relationship between changes in the percentage of "severely" and "nearly" low achieving students in the Title I group being served. If there were no changes or minor ones in the percentage of "achieving" students served, one would expect a simple negative relationship between the changes in these proportions. That is, as the percentage of "severely" low achieving students increased, the percentage of "nearly"

low achieving students should decrease. Figure 3-3 displays the magnitude of changes for each of these characteristics for the 13 Demonstration districts. The figure does indeed reflect this negative relationship ($r = -.84$).

Figure 3-3 also reveals that seven of the 13 sites fall in the upper left quadrant, indicating that an increase in the percentage of "severely" low achieving students served by Title I was accompanied by a decrease in the percentage of "nearly" low achieving. Thus, the alternative allocation processes chosen by the majority of districts appear to have resulted in increased targeting of services to the most needy.

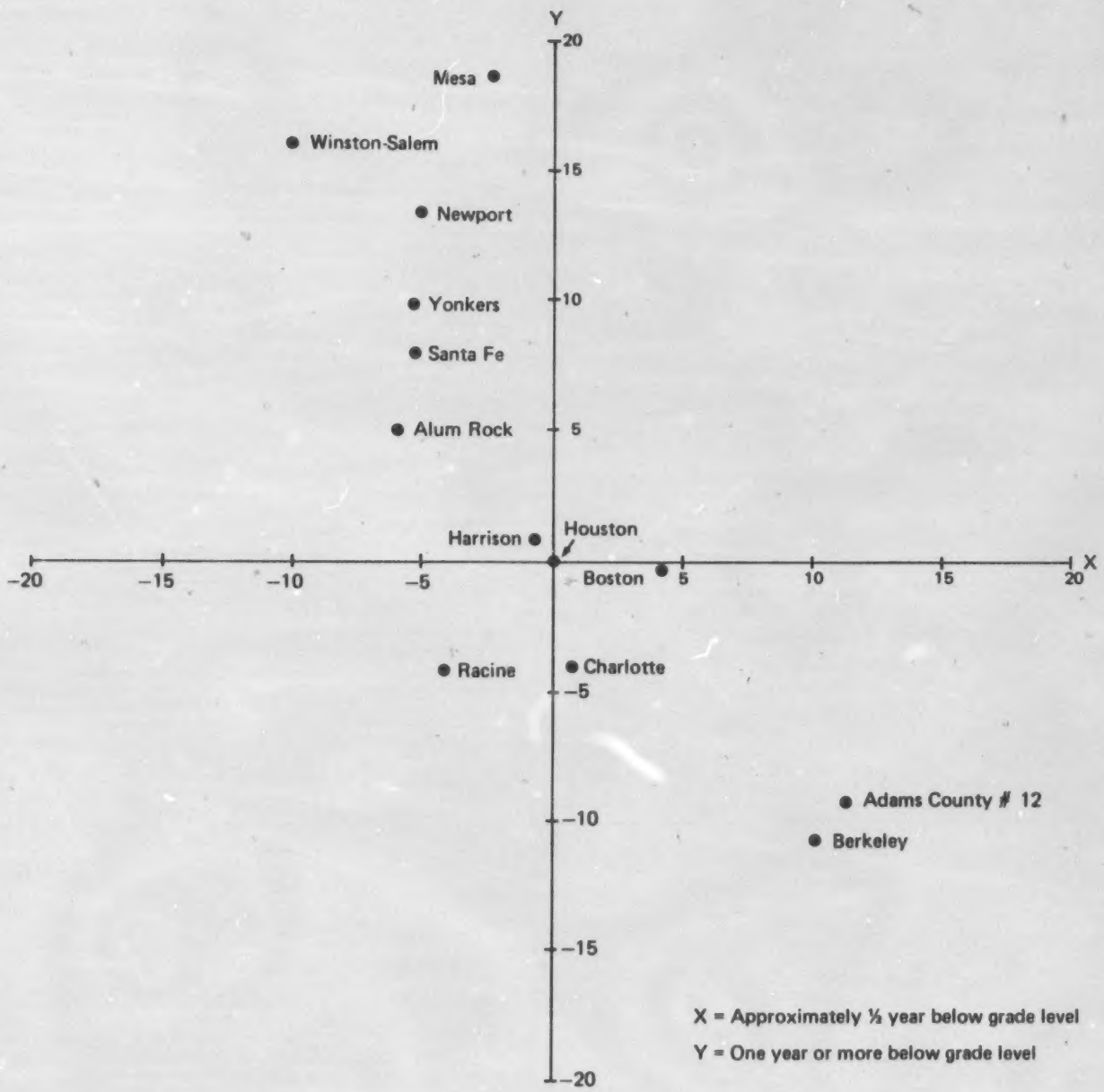
Four sites fall in the lower right quadrant, indicating that there was a decrease in the percentage of "severely" low achieving students, and a corresponding increase in the "nearly" low achieving group. Of these, two deserve comment because of their relatively large percentage shifts--Adams County #12 and Berkeley County. Referring to Table 3.2 one finds that in both of these sites, a large percentage of the Title I students served in 1975-76 were "severely" low achieving (83% and 79%, respectively). Both of these sites served a great many more students in 1976-77 than in the preceding year. If all the severely disadvantaged students continued to be served, and additional students were added, this finding would be reasonable.

Taken together, these findings suggest that in nine of the Demonstration districts, the alternative allocation processes adopted resulted in either greater concentration on the most academically needy students, or expansion of services to additional students with less severe need. In both cases, the aim of reaching more low achieving students seems to have been accomplished.

The analysis of the actual achievement scores shows little consistency with the other results and only one significant Title I change (see Table C-6 in Appendix C). These

FIGURE 3-3

COMPARISON OF CHANGES IN THE CHARACTERISTICS OF TITLE I STUDENTS AT DIFFERENT ACHIEVEMENT LEVELS



ambiguous results are almost certainly the result of small sample sizes in most sites and the difficulties of a post facto data collection. However, the actual achievement scores correlate strongly with the achievement scale used in the Class Roster. Across districts, these correlations average .66 for 1975-76 and .64 for 1976-77 (see Appendix C, Table C-7, for the by-site results). Given these high student level correlations and the exhaustive sample sizes made available by the Classroom Roster, it seems that the Roster achievement measure is accurate and reliable.

3.4.2 Additional Data on Changes in the Poverty Characteristics of Title I Students

Multiple measures of poverty status were available for students in the Demonstration study. Changes in three such variables derived from separate data sources and samples are presented here (the free lunch findings are repeated for comparative purposes). These are:

- free lunch participation--from the Classroom Roster
- AFDC participation of the students' parents--from the SSRIF
- CSA/Orshansky Poverty Measure--computed from the Parent Interview*

Table 3.3 shows the changes in percentage of Title I students who are poor using the three different poverty measures. For every site except Racine (where all changes are small) at least two out of three indicators suggest decreases in the percentage of Title I students who are poor over time. Although many of these decreases are not statistically significant, the picture as a whole clearly shows an overall decrease in the percentage of disadvantaged Title I students from 1975-76 to 1976-77. This is consistent with the free lunch

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*Results using alternative cut-offs of the CSA/Orshansky index are presented in Appendix C, Table C-8.

TABLE 3.3

CHANGE IN POVERTY PROPORTIONS
USING THREE ECONOMIC INDICATORS

DISTRICT/CRITERIA	FREE LUNCH PARTICIPATION	AFDC PARTICIPATION	CSA/ORSHANSKY INCOME POVERTY CUT OFF
Districts that serve low-achieving students in all elementary schools			
Adams County #12	-3	-8	-14
Harrison County	-7*	-10*	-5
Mesa	-13*	-3	-2
Newport	-16	10	-23
Racine	-2	1	2
Santa Fe	-12	-9	-27*
District that rank schools by achievement and serve fewer than all elementaries			
Charlotte	-12*	-3	-3
Winston-Salem	6*	-6	-3
Districts that rank schools primarily by poverty			
Berkeley County	-1	-1	-26
Boston	1	X	X
Houston	2	-4	-4
Districts making primarily intra-school changes			
Alum Rock	-11*	-26*	-16
Yonkers	-13*	-2	-19
AVERAGE	-6*	-5	-12

*Title I change is significant at $p \leq .05$.

findings presented earlier. This serves to reinforce our previous conclusion that decreases in the percentage poor among those served accompanies increases in the percentage who are low achieving.

3.5 Changes in Coverage

The analysis of student coverage asks a somewhat different question than does the analysis of student characteristics. While the characteristics analysis is concerned with the selectivity or concentration of students who have a particular disadvantage within the larger population of Title I students, coverage looks at the population of all disadvantaged students and asks how many are served by Title I.

The general approach to analysis of coverage consisted simply of computing the proportion of any target group that was served by Title I. Thus, for instance, we took the number of low achieving children served by Title I in a district and divided it by the total number of low achieving children, regardless of whether they were served by Title I. This gave us a percentage of children covered by Title I. In order to make these estimates as accurate as possible each total was adjusted for sampling and non-response effects. The details of this adjustment are given in Appendix A.

Tables 3.4 through 3.6 show the changes in student coverage for the three types of disadvantage also discussed under student characteristics (low achievement, poverty, and minority status) for each of the Demonstration districts. Because most of the districts have chosen to extend their Title I services to more students, the proportions of such students who receive services usually increase for each type of disadvantage. The expansion of services has therefore resulted in an increase in disadvantaged students served.

In addition, the increase in disadvantaged students served is generally greater than the increase in nondisadvantaged

TABLE 3.4

PERCENTAGE OF ALL LOW ACHIEVING* CHILDREN
WHO PARTICIPATE IN TITLE I

DISTRICT/CRITERIA	1975-1976 (PERCENT)	1976-1977 (PERCENT)	CHANGE
Districts that serve low-achieving students in all elementary schools			
Adams County #12	7	29	22
Harrison County	59	75	16
Mesa	38	47	9
Newport	20	44	24
Racine	14	44	30
Santa Fe	51	66	15
Districts that rank schools by achievement and serve fewer than all elementaries			
Charlotte	44	54	10
Winston-Salem	26	38	12
Districts that rank schools primarily by poverty			
Berkeley County	26	45	19
Boston	47	59	12
Houston	21	20	– 1
Districts making primarily intra-school changes			
Alum Rock	27	99	72
Yonkers	54	47	– 7
Average	33	51	18

*Reading one year or more below grade level.

TABLE 3.5

PERCENTAGE OF ALL FREE LUNCH
RECIPIENTS WHO PARTICIPATE IN TITLE I

DISTRICT/CRITERIA	1975-1976 (PERCENT)	1976-1977 (PERCENT)	CHANGE
Districts that serve low-achieving students in all elementary schools			
Adams County #12	3	14	11
Harrison County	36	42	6
Mesa	28	20	– 8
Newport	15	22	7
Racine	8	25	17
Santa Fe	30	36	6
Districts that rank schools by achievement and serve fewer than all elementaries			
Charlotte	35	40	5
Winston-Salem	23	31	8
Districts that rank schools primarily by poverty			
Berkeley County	19	35	16
Boston	31	40	9
Houston	21	19	– 2
Districts making primarily intra-school changes			
Alum Rock	29	96	67
Yonkers	53	50	– 3
Average	26	36	10

TABLE 3.6

PERCENTAGE OF ALL MINORITY CHILDREN
WHO PARTICIPATE IN TITLE I

DISTRICT/CRITERIA	1975-1976 (PERCENT)	1976-1977 (PERCENT)	CHANGE
Districts that serve low-achieving students in all elementary schools			
Adams County #12	2	15	13
Harrison County	30	35	5
Mesa	27	21	– 6
Newport	10	22	12
Racine	7	24	17
Santa Fe	23	29	6
Districts that rank schools by achievement and serve fewer than all elementaries			
Charlotte	32	39	7
Winston-Salem	20	28	8
Districts that rank schools primarily by poverty			
Berkeley County	26	39	13
Boston	30	38	8
Houston	15	15	0
Districts making primarily intra-school changes			
Alum Rock	28	95	67
Yonkers	61	54	– 7
Average	24	35	11

students served. A comparison of these changes for two types of disadvantage (low achievers and poor students) can be found in Table 3.7. This table displays the change in proportion served for low achievers/non-low achievers and poor/non-poor students. It helps to show where the extension of services to new students has taken place.

Although both groups of students (nondisadvantaged and disadvantaged) show increases, the changes for disadvantaged students are usually greater than the change for other pupils. This is further evidence that in most cases the expansion of service to students has resulted in increased coverage for disadvantaged students.

Given these results, it is important to ask whether a similar increase in disadvantaged students served could have been brought about through an extension of services to additional students in original Title I schools rather than expansion to new, previously non-Title I schools. There may have been enough unserved disadvantaged students in original Title I schools to duplicate the results brought about through the extension of Title I services to new schools.

Table 3.8 addresses this question for low achieving students. Column 1 presents the percent of low achieving students who were in Title I schools and not served during 1975-76. Column 2 shows the observed change in percent of low achievers served resulting from alternative allocation policies which involved, in most cases, expanding to new schools. The first column represents the estimated change in low achieving students served if all underachieving students in original Title I schools had been served in 1976-77. This potential change is usually greater than or equal to the actual change in low achievers served under the Demonstration policy of expanding services to new schools. This table suggests then that an equivalent, if not greater, increase in low achievers served could have been achieved through expansion of Title I services only within original Title I schools.

TABLE 3.7

PERCENTAGE CHANGE IN TWO TYPES* OF COVERAGE FROM 1975-76 TO 1976-77

DISTRICT/CRITERIA	ACHIEVEMENT		POVERTY	
	LOW ACHIEVING	NOT LOW ACHIEVING	POOR	NOT POOR
Districts that serve low-achieving students in all elementary schools				
Adams County #12	22	3	11	6
Harrison County	16	3	6	6
Mesa	9	-4	-8	1
Newport	24	3	7	8
Racine	30	3	17	5
Santa Fe	15	0	6	6
Districts that rank schools by achievement and serve fewer than all elementaries				
Charlotte	10	5	5	11
Winston-Salem	12	-2	8	0
Districts that rank schools primarily by poverty				
Berkeley County	19	9	16	10
Boston	12	9	9	5
Houston	-1	-1	-2	0
Districts making primarily intra-school changes				
Alum Rock	72	65	67	59
Yonkers	-7	0	-3	6
Average	18 (13)**	7 (2)	10 (6)	9 (5)

*Low achieving is defined as reading 1 year or more below grade level, and poor is defined as receiving free or reduced price lunch.

**Averages computed without including Alum Rock.

TABLE 3.8

PERCENTAGE OF LOW ACHIEVING CHILDREN WHO WERE IN TITLE I SCHOOLS AND DID NOT RECEIVE TITLE I SERVICES IN YEAR I (1975-76) COMPARED WITH THE PERCENTAGE INCREASE IN LOW ACHIEVING CHILDREN SERVED DURING THE DEMONSTRATION YEAR 1976-77

DISTRICT/CRITERIA	PERCENT OF LOW-ACHIEVING CHILDREN IN TITLE I SCHOOLS AND NOT SERVED BEFORE THE DEMONSTRATION	PERCENT INCREASE IN LOW-ACHIEVING CHILDREN SERVED DURING THE DEMONSTRATION
Districts that serve low-achieving students in all elementary schools		
Adams County #12	16	22
Harrison County	24	16
Mesa	21	9
Newport	15	24
Racine	23	30
Santa Fe	25	15
Districts that rank schools by achievement and serve fewer than all elementaries		
Charlotte	23	10
Winston-Salem	9	12
Districts that rank schools primarily by poverty		
Berkeley County	44	19
Boston	19	12
Houston	14	– 1
Districts making primarily intra-school changes		
Alum Rock	25	72
Yonkers	8	– 7
Average	21	18

It is likely that further concentration of services in original Title I schools would be economically, bureaucratically, and educationally more feasible than expanding services to new schools, given the limits in funding for educational programs. These results show that such a practice could cover as many disadvantaged children as are currently being covered in the Demonstration districts.

3.6 Summary

This chapter has dealt with two related topics:

- Changes in student characteristics, i.e., changes in the proportion of Title I students who are disadvantaged; and
- Changes in student coverage, i.e., changes in the proportion of disadvantaged students who are served by Title I.

While treated separately above, these changes are related. Taken together, these analyses examine the extent to which Title I services are reaching their intended target group (a coverage question) and are concentrated only on that group (a characteristics question).

The relationship between the characteristics and coverage analyses can be conceptualized as a four-celled matrix. (See Figure 3-4.) Each of the cells in this matrix may be interpreted as follows:

- If a district falls into the cell in which both coverage of the disadvantaged and concentration on the disadvantaged are high (Cell 1), then the targeting procedures have resulted in their intended outcomes.
- If a district falls into the cell in which coverage is low and concentration on the disadvantaged is high (Cell 2), then the targeting procedures are directing the services to the neediest students, but the services are concentrated on relatively few students, or resources are inadequate to serve all in need.

FIGURE 3-4

TYPOLOGY OF STUDENT CHARACTERISTICS
AND STUDENT COVERAGE OUTCOMES

CHARACTERISTICS (Concentration)	COVERAGE: HIGH	COVERAGE: LOW
HIGH	(1) All or almost all disadvantaged students covered and only disadvantaged students served (Ideal)	(2) Most disadvantaged students not covered but only disadvantaged students served (Concentration on disadvantaged to extent space/funds permit)
LOW	(3) All or almost all disadvantaged students covered but non-disadvantaged students served (Could possibly concentrate on disadvantaged further by increasing per pupil expenditures)	(4) Most disadvantaged students not covered and non-disadvantaged students served (Contrary to intent of Title I)

- If a district falls into a cell in which coverage is high but concentration on the disadvantaged is low (Cell 3), then services are either not intense enough or resources are more than adequate to serve the neediest students and more.
- If a district falls into a cell where both coverage of and concentration on the disadvantaged is low (Cell 4), the targeting procedures are not having the intended results.

3.6.1 Characteristics and Coverage Typology: Changes in Low-Achieving Students

Figure 3.5 classifies the Demonstration districts with respect to their coverage of and concentration on low-achieving students in 1975-76 and 1976-77. For purposes of classification, cutoff levels for each dimension were 33% and 66%, respectively.* Thus, districts serving one third of their low-achieving students in either year were classified in the high coverage category for that year. Similarly, districts with two-thirds or more of their Title I students characterized as low achievers were classified in the high concentration category for that year.

In 1975-76, only two sites fell into the high coverage/high concentration category. These sites served one-third or more of their low-achieving students and saturated their Title I program with two-thirds or more low achievers. Three sites, on the other hand, fell into the low coverage/low concentration classification. In 1976-77, seven sites could be classified as high in both coverage of and concentration on low-achieving students, whereas no sites could be classified as low on both dimensions. Thus, for many sites there was a shift towards increased coverage of and/or concentration on low-achieving students over time.

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*These cutoff levels were selected because they approximate the respective cross-site averages for 1975-76.

FIGURE 3-5

STUDENT CHARACTERISTICS AND STUDENT COVERAGE OUTCOMES FOR ACHIEVEMENT LEVELS

1975-76

CHARACTERISTICS	COVERAGE: HIGH (>33% LOW ACHIEVERS SERVED)	COVERAGE: LOW (≤33% LOW ACHIEVERS SERVED)
HIGH (>65% CONCENTRATION OF TI STUDENTS)	Charlotte Harrison County	Adams County #12 Berkeley County Houston Winston-Salem
LOW (≤65% CONCENTRATION OF TI STUDENTS)	Boston Mesa Santa Fe Yonkers	Alum Rock Newport Racine

1976-77

CHARACTERISTICS	COVERAGE: HIGH (>33% LOW ACHIEVERS SERVED)	COVERAGE: LOW (≤33% LOW ACHIEVERS SERVED)
HIGH (>65% CONCENTRATION OF TI STUDENTS)	Berkeley County Charlotte Harrison County Newport Santa Fe Winston-Salem Yonkers	Adams County #12 Houston
LOW (≤65% CONCENTRATION OF TI STUDENTS)	Alum Rock Boston Mesa Racine	

At least two factors help to account for these changes: degree of coverage/concentration in 1975-76 and degree of program expansion. Districts serving a high proportion of low achievers in their Title I program in 1975-76 may have found it difficult to increase concentration further. Similarly, districts with high coverage of low-achieving students may have been unable to serve more, given a finite number of such students. With respect to program expansion, the smaller the amount of expansion, the less likely it is that coverage will change, all other things being equal.

Table 3.9 presents baseline and change data for concentration on and coverage of both low achievers and poor students. In addition it shows the percent change in numbers of students served per district. This table is useful in interpreting the changes observed for each district.

As a group, the direct allocation districts appear to have succeeded in increasing their concentration on and/or coverage of low-achieving students. In 1975-76 only one of the six direct allocation districts could be classified as high in both concentration on and coverage of low-achieving students--Harrison County. In 1976-77, two additional districts could be so classified. Santa Fe shifted from the low to the high concentration category; Newport changed both its concentration and coverage status.

While only one of the three remaining direct allocation districts changed its classification status, the other two also showed movement toward better targeting of services. Racine expanded the number of students served overall by 104%. In so doing, it also expanded its coverage of low-achieving students and moved to the high coverage cell. Because of its initially low concentration on low-achieving students (44%), Mesa's 18% shift did not effect movement to the high concentration cell. Similarly, despite a 22% increase in coverage, Adams County #12 remained in the low coverage category because of its initial coverage level (7%).

TABLE 3.9

YEAR 1 BASELINES* AND PERCENTAGE CHANGES
IN CHARACTERISTICS, COVERAGE, AND STUDENTS SERVED

DISTRICT/CRITERIA	CHANGE IN ACHIEVEMENT		CHANGE IN POVERTY		PERCENTAGE CHANGE IN STUDENTS SERVED
	CHARACTERISTICS	COVERAGE	CHARACTERISTICS	COVERAGE	
Districts that serve low-achieving students in all elementary schools					
Adams County #12	-9 (83)	22 (7)	-3 (24)	11 (3)	240
Harrison County	1 (67)	16 (59)	-7 (65)	6 (36)	29
Mesa	18 (44)	9 (38)	-13 (45)	-8 (28)	29
Newport	13 (53)	24 (20)	-15 (77)	7 (15)	154
Racine	-2 (60)	30 (14)	-2 (44)	17 (8)	104
Santa Fe	18 (64)	15 (51)	-11 (86)	6 (30)	56
Districts that rank schools by achievement and serve fewer than all elementaries					
Charlotte	-4 (83)	10 (44)	-12 (73)	5 (35)	-8
Winston-Salem	16 (72)	12 (26)	7 (64)	8 (23)	83
Districts that rank schools primarily by poverty					
Berkeley County	-12 (79)	19 (26)	0 (57)	16 (19)	76
Boston	-1 (65)	12 (47)	1 (91)	9 (31)	4
Houston	0 (67)	-1 (21)	2 (83)	-2 (21)	-9
Districts making primarily intra-school changes					
Alum Rock	5 (49)	72 (27)	-11 (89)	67 (29)	141
Yonkers	11 (61)	-7 (54)	-13 (85)	-3 (53)	20

*Year 1 baseline values in parentheses below percentage change.

Small shifts in both concentration on and coverage of low-achieving students did not change Charlotte's classification status. In both years, it was classified as high on both aspects of student targeting. Winston-Salem moved into the high coverage/high concentration category by virtue of its 12% increase in coverage. Thus, both pure reallocation sites succeeded in maintaining or expanding coverage of low-achieving students. In Charlotte this was effected despite an overall reduction in students served. In Winston-Salem it accompanied overall program expansion.

Changes in classification status for the other districts varied. There was no change in Boston or Houston. Berkeley County and Alum Rock increased in coverage of low-achieving students. Finally, Yonkers increased its concentration on this target group.

3.6.2 Characteristics and Coverage Typology: Changes in Poverty Levels

Figure 3-6 classifies the Demonstration districts with respect to their coverage of and concentration on poor students. Cutoff levels for these variables were 26% and 68%, respectively. As can be seen, there was no overall pattern to the shifts in classification status for the Demonstration districts over time.

In 1975-76 five sites could be classified as high in their concentration on and coverage of poor students. In 1976-77, despite shifts for two sites, five sites remained so classified. Similarly, despite movement across cells, four districts were classified as low on concentration and coverage in both years of the Demonstration.

For four of the six direct allocation districts, coverage and concentration status did not change during 1976-77. Racine and Adams County #12 remained low on both dimensions over time. Santa Fe remained high on both, while Harrison County remained high on coverage only. For the two

FIGURE 3-6

STUDENT CHARACTERISTICS AND STUDENT COVERAGE OUTCOMES FOR POVERTY LEVELS

1975-76

CHARACTERISTICS	COVERAGE: HIGH (>26% POOR SERVED)	COVERAGE: LOW (≤26% POOR SERVED)
HIGH (>68% CONCENTRATION OF TI STUDENTS)	Alum Rock Boston Charlotte Santa Fe Yonkers	Houston Newport
LOW (≤68% CONCENTRATION OF TI STUDENTS)	Harrison County Mesa	Adams County #12 Berkeley County Racine Winston-Salem

1976-77

CHARACTERISTICS	COVERAGE: HIGH (>26% POOR SERVED)	COVERAGE: LOW (≤26% POOR SERVED)
HIGH (>68% CONCENTRATION OF TI STUDENTS)	Alum Rock Boston Santa Fe Winston-Salem Yonkers	Houston
LOW (≤68% CONCENTRATION OF TI STUDENTS)	Berkeley County Charlotte Harrison County	Adams County #12 Mesa Newport Racine

other direct allocation districts--Mesa and Newport--coverage and concentration respectively, were reduced. Thus it would appear that the increase in low-achieving students served was accompanied at least in part by a reduction in the proportion of poor served in these sites.

In switching from poverty to achievement criteria in the determination of school eligibility, Charlotte reduced its concentration on poor students. In contrast, Winston-Salem completely reversed its classification status in 1976-77 by increasing both concentration and coverage. Thus, the two pure reallocation districts produced differing outcomes with respect to continued service of poor students.

Of the other districts, only Berkeley County changed its classification status. Through expanding services to more students, but not to more schools, it increased coverage of poor students by 16%. It therefore moved into the high coverage category, while maintaining its low classification on concentration.

4.0 CHANGES IN SERVICES

4.1 Introduction

This chapter focuses on the Demonstration-related changes in instructional services received by Title I students. Since the large majority of Title I funds in each of the Demonstration districts is allocated to compensatory language arts instruction, the discussion centers on changes in this area. Conclusions are based on estimates of changes in the amount (in minutes per day) of compensatory language arts instruction received by Title I students, in the proportion of such instruction delivered in groups of various sizes, and in the proportion of such instruction delivered by various types of instructors. The relationship between changes in amount of compensatory and regular language arts instruction is also discussed, as is the relationship between changes in numbers of students served and amount of services received by them.

A previous report* presented data on the regular and compensatory services received by students in the Demonstration districts during the baseline year (1975-76), prior to the two year implementation of allocation changes. Major conclusions of that report may be summarized as follows:

1. Title I students spent time in compensatory instruction at the expense of some time in regular instruction. (That is, students who received compensatory language arts instruction lost time in regular language arts instruction.)

2. The compensatory language arts instruction received by Title I children was offered in smaller instructional groups and by instructional specialists more often than was their regular language arts instruction.

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*James J. Vanecko, et al., ESEA Title I Allocation Policy: Demonstration Study--Analysis of Baseline Data, Volumes I & II (Abt Associates Inc.: Cambridge, Mass., October 1977).

3. When the total amount of language arts instruction--both compensatory and regular--received by Title I students was compared with that received by non-Title I students, the advantage of smaller groups and specialists was maintained, benefits accruing primarily from the Title I children's time in compensatory instruction.

It is against these baseline conclusions that changes in instructional services are discussed. Before turning to the findings of the present study, it should be recalled that in 11 of the 13 Demonstration districts changes in allocation procedures resulted in an increase in the number of students served by Title I during the first implementation year (1976-77). Since the districts' Title I funds allocation was not increased by the Demonstration, one might expect a concomitant reduction in the intensity or quality of the Title I services provided. As noted in Chapter 2, however, many of the districts found sources of funds outside their annual Title I allocation--carryover monies from the previous year, district or state compensatory funds, etc.--or redistributed Title I funds across grades or types of instruction. To the extent that these funds enabled districts to hire additional staff, the intensity and quality of instruction observed during the baseline year may have been maintained.

4.2 Method

4.2.1 Instruments and Variable Groups

Results presented in this chapter are based primarily on data obtained from the Classroom Activities Log (CAL).* The major portion of the CAL is a description, supplied by classroom teachers, of the experiences of sampled third and fourth grade students on two selected school days during 1975-76 and 1976-77. For purposes of data collection, the school day is divided into ten-minute intervals. For each interval, teachers are asked to describe:

*A copy of the CAL is included in Appendix D.

- The content or nature of the activity occurring during that period of time (13 categories);
- whether or not that activity was compensatory (2 categories);
- whether or not the activity occurred in a language other than English (2 categories);
- the size of the group in which the sampled student participated in the activity (5 categories); and
- the type of instructor, if any, directly involved in the activity (9 categories).

In addition to this primary section the CAL has two other sections. One of these requires the teacher to describe in greater detail the nature of any compensatory services received and the kind of instruction that the child missed while receiving these services. The final section asks the teacher to describe activities that were departures from the activities of the normal school day. Data from all three sections were obtained for each student on two randomly-selected days. Based on the results of the CAL reliability study,* time measures available from the two observation days were averaged for analytic purposes.

As noted above, the primary information provided by the CAL consists of observations along five dimensions. Considering each category along each dimension as a separate treatment yields 2,340 (13x2x2x5x9) possible "instructional experiences" which a child could have during every ten-minute interval of the day. Since many of these are neither important nor even sensible (e.g., compensatory lunch), a subset of these variables was selected for analysis. Table D-1 lists and defines the subset of variables.

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*Because of the importance of the CAL, a study of its reliability was undertaken in which classroom teachers and trained observers completed CALs for a small sample of students. The findings of this reliability study are presented in Appendix D.

In addition to the CAL, part of the data presented in this chapter were drawn from the Instructional Schedule. The primary objective of the Instructional Schedule is to estimate the amount of time per week specialists spend instructing children directly. This instrument was completed for a typical work week by all compansatory language arts and mathematics specialists in each of the Demonstration districts that use specialists. While a wide range of data were collected via this instrument, data pertaining to the average length of an instructional period and average class size were deemed most relevant to the study of changes in student experiences.

In brief, three measures of intensity and quality of services are highlighted in this report: amount of instructional time, proportion of that time spent in instructional groups of various sizes, and proportion of that time spent with various types of instructors. Of the indicators available, these three show the most promise of relating to successful programs. Of these, opportunity to learn--the amount of time that a student is exposed to the material to be learned--appears in the literature to be the most highly related to student success.* Measures of quality of instruction such as group size and type of instructor also appear to have some impact on student success, but the relationship is less well documented. Smaller classes and smaller instructional groups within them, however, present at least the opportunity for more individualization of instruction and may therefore be used as measures of the extent to which individualization (one of the goals of Title I) is being realized.**

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*See, for example, Annegret Harnischfeger and David Wiley, "Exposure to Schooling: Method, Conclusions, Policy," Educational Researcher 5 (February 1976): 18.

**A measure of the extent to which the teachers of these children individualize the instructional program for each child was obtained and was reported for the baseline year. Analysis of the extent of individualization for 1976-77 will be presented in a forthcoming report.

The use of specialists, who in the Demonstration districts generally have more training and experience than other providers of instruction, may also confer an advantage to those who receive instruction from them.

Changes in intensity (amount) of instruction are reported in minutes per day (e.g., minutes of compensatory language arts), while measures of quality are reported in proportions (e.g., proportion of compensatory language arts delivered in small groups). While the choice of minutes was clearly appropriate for reporting changes in amount of services received, the choice of a unit for measuring changes in quality of instruction was not as straightforward. Proportions were selected since they enable one to estimate the extent of changes in group size and type of instruction independent of changes in the quantity of instruction.

4.2.2 Sample and Analytic Techniques

The number of children on which the analyses discussed in this chapter were based is given in Table D-2. A brief summary of the study design and analysis strategy has already been presented in Section 3.3; details of the analysis strategy are presented in Appendix A. As discussed in Appendix A, the CAL data collection for Boston and Yonkers was somewhat different from that in other sites. This should be considered when interpreting the CAL results.

The major question addressed by the CAL analysis was whether or not services received by Title I students changed over the two years of the study. The general approach taken was to perform analysis of variance-type methods within each district, comparing the mean amount of instruction (minutes or proportion) delivered to Title I students prior to implementation (1975-76) and during the first implementation year (1976-77). The statistical analyses for compensatory language arts were conducted only on the sample of Title I children actually receiving such instruction; the analyses

of regular and total language arts were conducted on this sample plus the non-Title I sample.* The former analysis is a conservative one, relying as it does on the smaller sample. However, it does not allow us to assess changes in compensatory services delivered to Title I students relative to change in compensatory services delivered to non-Title I students, since the latter group by definition should receive little or no compensatory services. On the other hand, both Title I and non-Title I students receive regular language arts, so one can determine whether changes in services received are limited to the Title I population, or occur system-wide.

The strongest evidence of a change resulting from the Demonstration would be an observed change in services received by Title I students over the two years, accompanied by little or no change in services received by non-Title I students. More generally, however, any evidence of a differential change might be taken as evidence for an effect of the Demonstration. Thus, one could take as evidence those cases where changes in services delivered to Title I students were different in magnitude from the corresponding changes in services delivered to non-Title I students.

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*Based on work performed after the submission of our report on the analysis of baseline data (Vanecko, et al., 1977) we reduced the sample of Title I students participating in the analysis of change in services by excluding Title I students who did not receive compensatory language arts. This reduction in the sample does not alter the interpretation of any of the previously reported data (see Appendix D). It does mean that the reported Title I/non-Title I differences are underestimates of the differences existing in the reduced sample. In all cases this acts to strengthen our previously reported conclusions.

4.3 Findings

4.3.1 Language Arts--Quantity of Instruction*

In most districts Title I students received less compensatory language arts instruction during the Demonstration than during the baseline year. These losses, in most cases, were accompanied by comparable or larger gains in regular (i.e., district supported) language arts instruction.

Table 4.1 shows the daily average amount of time that Title I students spent in compensatory, regular, and total language arts instruction for each district during the baseline year (1975-76), and during the first implementation year (1976-77), and the change in instructional time between the two years. In most districts the Title I children lost time in compensatory language arts instruction. By conservative statistical estimates, the losses were significant in three districts--Mesa, Racine, and Charlotte. In these sites, the losses ranged from eight to 15 minutes, or from 23% to 41% of the amount of compensatory language arts received in the baseline year. Three other districts--Berkeley County, Alum Rock, and Boston--show equally large, but non-significant losses. In no site was there contrary evidence that students gained

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*The basic descriptive data on which the conclusions of this study are drawn are presented in Tables D-13 through D-25, which contain the average daily amount (in minutes) of various instructional experiences delivered to Title I and non-Title I students by district prior to and during the Demonstration. Tables D-26 through D-38 contain the proportion of compensatory and regular language arts instruction delivered by four types of instructors and in four group sizes. Appendix D also presents brief site-by-site written interpretations of these tables.

While language arts instruction is of prime interest in this study, data on other content areas (mathematics, social studies, science, etc.) are presented in Tables D-13 through D-25. Table D-39 presents a summary highlighting selected content areas. In general, few significant changes appear to have taken place.

TABLE 4.1

TIME (MINUTES PER DAY) SPENT IN COMPENSATORY AND REGULAR LANGUAGE ARTS INSTRUCTION BY TITLE I STUDENTS*

DISTRICT/CRITERIA	COMPENSATORY			REGULAR			TOTAL		
	1975-76**	1976-77***	Change	1975-76	1976-77	Change	1975-76	1976-77	Change
Districts that serve low-achieving students in all elementary schools									
Adams County #12	28	27	-1	109	117	8	137	144	7
Harrison County	28	30	2	120	117	-3	148	147	-1
Mesa	37	22	-15†	96	116	20††	132	138	6
Racine	34	25	-9†	112	124	12	146	147	2
Santa Fe	27	24	-3	111	107	-4	138	131	-7
Districts that rank schools by achievement and serve fewer than all elementaries									
Charlotte	35	27	-8†	97	94	-3	132	121	-11†
Winston-Salem	41	41	0	112	124	12††	153	165	12††
Districts that rank schools primarily by poverty									
Berkeley County	35	26	-9	111	141	30†	146	167	21
Boston	41	34	-7	90	106	16	131	140	9
Houston	38	34	-4	122	145	23†	160	179	19†
Districts making primarily intra-school changes									
Alum Rock	41	31	-10	68	95	27†	109	126	17
Yonkers	30	33	3	67	103	36††	97	136	39††

*Newport is excluded from analyses that depend on the Classroom Activities Log (CAL) because the sample of students receiving language arts instruction was too small to permit reliable estimates.

**N = 400.

***N = 658.

†Change is significant at the .05 level.

††Change is significant at the .05 level, but occurs systemwide (a parallel change is found for Non-Title I).

significantly in minutes of compensatory language arts instruction. Looking only at the direction of change over time, we find that in nine of 12 districts Title I students suffered losses in amount of compensatory language arts instruction received.

The findings reported in Table 4.1 represent changes in the amount of time during which students actually received compensatory language arts--time spent on-task. Such changes may reflect a change in program design or a change in the way the program is actually experienced by students. Data from another source--the instructional specialists' reports of the planned length of the compensatory language arts instructional period--confirm that such losses were in part by design. In eight of the 11 districts for which data were available, the planned length of the instructional period decreased over time; in seven of these sites, the decrease was statistically significant.* These losses were generally smaller than the losses in minutes on-task. Thus, it would appear that students lost some portion of their instructional time both at the planning and implementation stages.

Both the CAL and the instructional specialists verify the fact that Title I students have indeed lost time in compensatory language arts instruction. Given that these are not pre-designed experiments, but naturally-occurring demonstrations in which the ability to detect differences is constrained, the consistency of the findings is compelling.

With these results in mind, it is reasonable to ask if Title I students lost time in total language arts instruction (regular and compensatory combined), or whether the loss in compensatory instruction was balanced by an increase in time spent in regular language arts. Looking first at the regular language arts portion of Table 4.1, we note that Title I students in six districts realized significant increases in regular language arts time, and that three of

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*These data are presented in Table D-40.

these gains for Title I students were greater than those for their non-Title I counterparts.* Whether these increases in regular language arts time were direct effects of the Demonstration is difficult to determine. The increases (other than in Mesa and Racine), however, were larger than the accompanying decreases in compensatory language arts instruction. It is not clear why changes in Title I allocation procedures would have had a direct effect on regular language arts, beyond those changes resulting from comparable losses in compensatory time.

Looking now at the total language arts portion of Table 4.1, we see that in all but two districts, the general effect of increasing the amount of regular language arts instruction was to balance the compensatory losses. In only one district (Charlotte) did Title I students lose a statistically significant amount of time in total language arts instruction. In Winston-Salem, Houston, and Yonkers, on the other hand, Title I students gained significantly in total time, and in Houston and Yonkers the gain was significantly greater than the gain exhibited by non-Title I students. These findings, and those for regular language arts discussed above, suggest that the loss in minutes of compensatory instruction for Title I students was balanced by a gain in minutes of regular instruction.

4.3.2 Language Arts--Quality of Instruction

In discussing quality of instruction we present findings in terms of the proportion of time spent by students in various group sizes and with various types of instructors.

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*While a comparison of the Title I compensatory language arts change with the non-Title I compensatory language arts change is not possible due to the small number of non-Title I students who received compensatory instruction, such a comparison is possible for regular language arts and total language arts. The detailed data for these comparisons, which are summarized in Table 4.1, are presented in Tables D-41 and D-42.

Knowing that Title I students have lost minutes of compensatory time, one may ask whether those losses are spread equally over all group sizes and types of instructors. If proportionally less time is spent in smaller groups or with specialists, the special nature of the compensatory program will have been affected by more than the loss of time.

4.2.3.1 Instructional Group Size*

There appears to be no major change in the proportion of time Title I students spend in various size groups for compensatory language arts. An inspection of Table 4.2 indicates that relatively sizable shifts are found in only three districts--toward larger groups in Berkeley County and Yonkers, and toward smaller groups in Adams County #12. Only one of these shifts is significant, however. More importantly, while there is a great deal of variability across districts in the grouping patterns they employ, there appears to be a reasonable degree of consistency within districts over time.

These findings are paralleled by negligible shifts in the size of compensatory language arts classes, as reported by elementary-level instructional specialists across the districts. The average class size in 1975-76 was eight students and remained at approximately that level during the Demonstration. (See Table D-43.)

The size of the instructional group in which Title I students (as well as non-Title I students) receive regular language arts instruction has also not changed significantly. (See Table D-43.) Only two districts (Alum Rick and Berkeley County) show sizable shifts, both of which indicate an increase

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*"Instructional group size" is defined as the size of the specific group, within the class, assigned to the same lesson or instructed in the same manner, as reported on the CAL; it is one measure of the extent to which teachers individualize instruction. Four group sizes are used in this report: individualized (1); small (2-5); medium (6-20); large (over 21).

TABLE 4.2

PROPORTION OF TIME TITLE I STUDENTS SPENT IN INSTRUCTIONAL GROUPS OF VARIOUS SIZES IN THEIR COMPENSATORY LANGUAGE ARTS CLASSES*

DISTRICT/CRITERIA	INDIVIDUAL			SMALL			MEDIUM			LARGE		
	1975-76**	1976-77***	Change	1975-76	1976-77	Change	1975-76	1976-77	Change	1975-76	1976-77	Change
Districts that serve low-achieving students in all elementary schools												
Adams County #12	7	7	0	30	55	25	62	37	-25	0	0	0
Harrison County	3	5	2	38	30	-8	59	63	4	1	3	2
Mesa	7	1	-6	90	96	6	3	3	0	0	0	0
Racine	20	31	11	80	68	-12	0	1	1	0	0	0
Santa Fe	10	6	-4	73	75	2	16	18	2	0	0	0
Districts that rank schools by achievement and serve fewer than all elementaries												
Charlotte	16	14	-2	51	43	-8	34	42	8	0	1	1
Winston-Salem	5	6	1	50	58	8	45	36	-9	0	1	1
Districts that rank schools primarily by poverty												
Berkeley County	25	18	-7	46	26	-20	16	51	35	13	5	-8
Boston	7	14	7	47	32	-15	44	54	10	2	0	-2
Houston	6	7	1	26	27	1	63	61	-2	5	5	0
Districts making primarily intra-school changes												
Alum Rock	36	37	1†	36	24	-12†	26	33	7	1	5	4
Yonkers	7	27	20	61	11	-50†	26	49	23	7	14	7

*Newport is excluded from analyses that depend on the Classroom Activities Log (CAL) because the sample of students receiving language arts instruction was too small to permit reliable estimates.

**N = 400.

***N = 658.

†Change is significant at the .05 level.

in the proportion of time Title I students spend in larger groups. The shift in Berkeley County (28% for medium and large combined) was not accompanied by a comparable shift for non-Title I students; the shift in Alum Rock was (35%).

Generally, then, instructional group size for Title I students' regular and compensatory language arts instruction was not significantly changed during the Demonstration. In 1975-76 Title I students across all the districts received their compensatory language arts instruction in small groups 65% of the time, and their regular language arts instruction in such groups 29% of the time. In 1976-77, the comparable proportions were 59% and 23%.

4.3.2.2 Type of Instructor*

In general, there were small changes in the type of instructor from whom Title I students received compensatory language arts. As Table 4.3 shows, the preponderance of compensatory language arts instruction in both years was delivered by instructional specialists. In 1975-76, 9 of 12 districts for which CAL data were available showed Title I students receiving more than 50% of their compensatory language arts instruction from specialists; in 1976-77, this pattern held for 10 of the 12. (From other data we also know that Newport provided such instruction primarily through specialists in both years.) The two districts which relied primarily on paraprofessionals in the baseline year--Mesa and Racine--continued to do so during the Demonstration.

While the Title I students' compensatory language arts instruction was delivered primarily by instructional specialists, their regular language arts instruction was

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*Instructional specialists are teachers who specialize in a single subject area; classroom teachers are those with regular homeroom responsibilities; paraprofessionals include student teachers, paid aides or assistants, parent/adult volunteers, other adults (including specialists and classroom teachers), and older students. Paraprofessionals may include some staff who are certified to teach.

TABLE 4 3

PROPORTION OF TIME TITLE I STUDENTS SPENT WITH DIFFERENT TYPES OF INSTRUCTORS IN COMPENSATORY LANGUAGE ARTS INSTRUCTION*

DISTRICT/CRITERIA	PROFESSIONAL			INSTRUCTIONAL SPECIALIST			PARAPROFESSIONAL			NO INSTRUCTOR		
	1975-76**	1976-77***	Change	1975-76	1976-77	Change	1975-76	1976-77	Change	1975-76	1976-77	Change
Districts that serve low-achieving students in all elementary schools												
Adams County #12	0	5	5	83	93	10	10	1	-9†	6	0	6†
Harrison County	2	4	2	94	96	2	3	0	-3	1	0	-1
Mesa	1	0	-1	22	17	-5	77	83	6	0	0	0
Racine	0	2	2	11	10	-1	88	87	-1	1	1	0
Santa Fe	5	13	8	82	79	-2	14	7	-7	0	1	1
Districts that rank schools by achievement and serve fewer than all elementaries												
Charlotte	0	13	13†	87	79	-8	10	4	-6†	3	4	1
Winston-Salem	2	13	11†	81	68	-13	13	18	5	6	3	-3
Districts that rank schools primarily by poverty												
Berkeley County	12	16	4	62	76	14	22	8	-14	4	0	-4
Boston	4	12	8	88	74	-14	5	3	-2	2	11	9
Houston	6	6	0	86	82	-4	6	7	1	2	5	3
Districts making primarily intra-school changes												
Alum Rock	19	5	-14	32	51	19	34	39	5	16	6	-10
Yonkers	7	2	-5	67	88	21	0	0	0	26	10	-16

*Newport is excluded from analyses that depend on the Classroom Activities Log (CAL) because the sample of students receiving language arts instruction was too small to permit reliable estimates.

**N = 400.

***N = 658.

†Change is significant at the .05 level.

delivered predominantly by classroom teachers.* In the baseline year, Title I students spent 73% of their regular language arts instruction time with classroom teachers, and 74% during the Demonstration. In both years, only 2% of their regular language arts instruction was spent with specialists. This pattern shows no change across the two years. (See Table D-44.)

4.3.2.3 Further Quality of Instruction Findings

The results discussed above indicate that the qualitative nature of the language arts instruction received by Title I students, as measured by group size and type of instruction, did not change substantially during the first implementation year of the Demonstration. Title I students continued to receive the largest proportion of their compensatory language arts instruction in small groups and from specialists, and the largest proportion of their regular language arts instruction (as did non-Title I students) in larger groups and from classroom teachers. In most districts, however, the actual number of minutes that Title I students spent in compensatory language arts instruction has decreased during the course of the Demonstration. Given Title I emphasis on smaller groups and instructional specialists, it is important to consider whether the relative advantage that Title I students had vis-a-vis their non-Title I counterparts (i.e., a greater number of minutes of total instruction in smaller groups and with specialists) has been affected by the Demonstration.

Table 4.4 presents differences between Title I and non-Title I students (Title I minus non-Title I) for total language arts instruction in each year, and the changes in these differences. The 1976-77 columns for each indicator

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*Part of the difference between compensatory and regular instruction may be due to the fact that 80% of the compensatory language arts instruction in these districts is conducted in a pull-out setting, away from the child's regular classroom.

TABLE 4.4

ADDITIONAL LANGUAGE ARTS INSTRUCTION RECEIVED BY TITLE I STUDENTS AS COMPARED WITH NON-TITLE I STUDENTS*

DISTRICT/CRITERIA	ADDITIONAL MINUTES/DAY IN LANGUAGE ARTS INSTRUCTION			ADDITIONAL MINUTES/DAY IN GROUPS OF 1-5 STUDENTS			ADDITIONAL MINUTES/DAY WITH INSTRUCTIONAL SPECIALISTS		
	1975-76**	1976-77***	Change	1975-76	1976-77	Change	1975-76	1976-77	Change
Districts that serve low-achieving students in all elementary schools									
Adams County #12[a]	16	12	-4	23	20	-3	22	24	2
Harrison County	17	16	-1	11	10	-1	27	28	1
Mesa	22	13	-11	31	27	-4	10	5	-5
Racine	15	9	-6	40	14	-26	3	2	-1
Santa Fe[a]	23	12	-16	34	37	3	22	21	-1
Districts that rank schools by achievement and serve fewer than all elementaries									
Charlotte	20	10	-10	26	15	-11	30	19	-11
Winston-Salem	15	21	6	18	22	4	30	27	-3
Districts that rank schools primarily by poverty									
Berkeley County	1	17	16	33	2	-31	21	20	-1
Boston	23	29	6	21	25	4	35	32	-3
Houston	11	24	13	10	14	4	29	29	0
Districts making primarily intra-school changes									
Alum Rock[a]	2	14	12	32	17	-15	5	14	9
Yonkers	-9	-4	5	6	-3	-9	12	26	14

*Newport is excluded from analyses that depend on the classroom activities log (CAL) because the sample of students receiving language arts instruction was too small to permit reliable estimates.

[a]Instructional specialists in these districts have extra training or experience.

**N = 400 for Title I students and 2520 for non-Title I students.

***N = 658 for Title I students and 1894 for non-Title I students.

show that with the exception of Yonkers, Title I students in all districts continued to receive more time in overall language arts instruction, more time in small groups, and more time with specialists than their non-Title I counterparts. The change columns, however, show that for the various indicators the Title I students' advantage has decreased in some districts and increased in others. In the three districts which showed a significant decrease (see Table 4.1) in time spent in compensatory language arts--Mesa, Racine, and Charlotte--we find across-the-board decreases in Title I students' advantage in time for all three areas. These are the only three districts which show such a pattern. In Berkeley County and Alum Rock, districts which had large but non-significant losses of time in compensatory language arts, Title I students actually increased their advantage in time in overall instruction, due to increases in regular instruction. On the other hand, students in these districts experience large losses of time in small groups. In all other districts, there was no large or significant change in the Title I/non-Title I language arts difference over time.

In summary, we conclude that there was a consistent loss of time in compensatory language arts instruction in these districts, accompanied in many instances by an increase in the amount of time spent in regular language arts. Compared with non-Title I students, Title I students continue to receive more time in language arts, and more time in small group instruction and with specialists. In terms of the quality of instruction, Title I students have lost a small amount of time in small groups vis-a-vis the non-Title I group.

4.3.3 School Type Changes

The results presented thus far have described the impact of the Demonstration using data which were aggregated across different types of Title I and non-Title I schools to produce average values for Title I and non-Title I students. In addition to this crucial, policy-relevant analysis, we

might also disaggregate the data to consider whether the Demonstration differentially affected students in various types of schools. We might ask, for example, if students in schools which had been served prior to and during the Demonstration ("old" schools) lost some services as a result of the extension of Title I to a greater number of schools. We might also ask if students in schools newly served by Title I ("new" schools) received less compensatory language arts instruction than students in "old" Title I schools.

Table 4.5 presents findings which address these questions. Changes in the amount of compensatory language arts instruction received by Title I students at the aggregate level are presented in the first column and at two disaggregated levels in the second and third columns. The second column allows us to determine if Title I students in "old" Title I schools received less compensatory language arts instruction as a result of the Demonstration; the third column allows us to determine if there was differential treatment of students in "old" and "new" schools as a result of the allocation changes.

As can be seen in the second column of Table 4.5, the effect of the Demonstration on "old" Title I schools was consistently comparable to the aggregated effect displayed in the first column. In fact, the difference between the two effects exceeds two minutes in only one district (Alum Rock). Thus, it appears that students in "old" Title I schools lost compensatory language arts instruction and that the aggregated differences across the two years cannot be attributed solely to the delivery of lesser amounts of compensatory instruction in "new" schools.

Further evidence for this conclusion is given in the third column which shows that, in general, there were only minor differences in the amount of compensatory language arts instruction received by Title I students in "old" and "new" Title I schools. These findings also indicate that

TABLE 4.5

CHANGE IN MINUTES PER DAY OF COMPENSATORY LANGUAGE ARTS FOR TITLE I STUDENTS BY SCHOOL TYPE IN THE DEMONSTRATION DISTRICTS*

DISTRICT/CRITERIA	DIFFERENCE BETWEEN ALL TITLE I SCHOOLS IN 1975-76** AND ALL TITLE I SCHOOLS IN 1976-77***	DIFFERENCE BETWEEN OLD TITLE I SCHOOLS IN 1975-76 AND THOSE SAME SCHOOLS IN 1976-77	DIFFERENCE BETWEEN OLD AND NEW TITLE I SCHOOLS IN 1976-77
Districts that serve low-achieving students in all elementary schools			
Adams County #12	-1	-1	1
Harrison County	2	1	3
Mesa	-15†	-15†	0
Racine	-9†	-9†	0
Santa Fe	-3	-5†	5
Districts that rank schools by achievement and serve fewer than all elementaries			
Charlotte	-8†	-8†	-2†
Winston-Salem	0	2	-7†
Districts that rank schools primarily by poverty			
Berkeley County	-9	-9	--
Boston	-7	--	--
Houston	-4	-4†	1
Districts making primarily intra-school changes			
Alum Rock	-10	-4	-9
Yonkers	3	5	-9

*Newport is excluded from analyses that depend on the Classroom Activities Log (CAL) because the sample of students receiving language arts instruction was too small to permit reliable estimates.

**N = 400.

***N = 658.

†Change is significant at the .05 level.

--In 1976-77 there were no new schools in Berkeley County and no data were collected in old Title I schools in Boston.

when services were extended to "new" schools in 1976-77, the amount of compensatory instruction received was generally comparable to that of students in "old" Title I schools.

4.4 Relationships Between the Changes in Services and the Changes in Allocation Procedures Made by the Districts

Results discussed in this section of the report indicate that while changes in the quality of compensatory instruction resulting from the Demonstration are few and varied, the amount of compensatory language arts instruction received by the typical Title I student has decreased in the vast majority of districts. As shown in Table 4.6, the size of the change varies from -41% to +10% of the amount of compensatory language arts received in 1975-76, prior to the implementation of waivers. Averaging across sites, Title I students have lost approximately 14% of their compensatory language arts instructional time.

Given these findings, it is reasonable to ask two related questions. First, is the loss in the amount of compensatory language arts time per student accompanied by a comparable increase in the number of students served? If so, one might argue that the total amount of compensatory instruction received by all Title I students remained stable or even increased over time. In such a case, the choice of allocation strategy--more students with less compensatory time per student, and/or fewer students with more compensatory time per student--might be considered purely a matter of district preference, with no net loss of compensatory services across the served population. (This, of course, assumes that at least a basic minimum of compensatory instruction is provided.) If the change in number of students served does not account for the loss in compensatory language arts per student, the second question may be asked. That is, what other aspects of program delivery appear to account for the loss in amount of compensatory instruction?

TABLE 4.6

PERCENTAGE CHANGE IN COMPENSATORY LANGUAGE ARTS INSTRUCTION AND NUMBER OF PUBLIC ELEMENTARY STUDENTS SERVED BY TITLE I

DISTRICT/CRITERIA*	PERCENT CHANGE IN MINUTES OF COMPENSATORY LANGUAGE ARTS INSTRUCTION RECEIVED PER TITLE I STUDENT**	PERCENT CHANGE IN PUBLIC ELEMENTARY STUDENTS SERVED BY TITLE I
Districts that serve low-achieving students in all elementary schools		
Adams County #12	-4	240
Harrison County	7	29
Mesa	-41	29
Racine	-26	104
Santa Fe	-11	56
Districts that rank schools by achievement and serve fewer than all elementaries		
Charlotte	-23	-4
Winston-Salem	0	83
Districts that rank schools primarily by poverty		
Berkeley County	-26	76
Boston	-17	4
Houston	-11	-9
Districts making primarily intra-school changes		
Alum Rock	-24	141
Yonkers	10	20

*Newport is excluded from analyses that depend on the Classroom Activities Log (CAL) because the sample of students receiving language arts instruction was too small to permit reliable estimates.

**Determined by subtracting the number of minutes of compensatory language arts received in 1975-76 from the number of minutes received in 1976-77 and dividing this difference by the number of minutes received in 1975-76 ((1976-77)-(1975-76))/(1975-76).

As described in Chapter 2, the number of students served by the Title I program has indeed increased for the majority of the Demonstration districts. As shown in the second column of Table 4.6, this increase ranges from 4% to 240% in 10 of the 12 sites, with two sites having small reductions of less than 10% each. On the average, this increase amounts to 64% and appears to more than compensate for the 14% loss in instruction per Title I student served. In fact, although exact estimates are not yet available, it appears that the amount of compensatory language arts instruction* received by Title I students should increase in the majority of the Demonstration districts.**

The answer to how the Demonstration districts increase the number of students served as much as they do, with such a small loss in minutes of instructional time per student, may be found in part in changing staff patterns. As displayed in Table 4.7, the increase in number of students was accompanied by a sizable increase in the number of staff. Across sites the staff increase was not quite as large as the student increase, however, and the ratio of staff to students declined slightly over time. This decline, which averages approximately 13%, is comparable to the decline in minutes of instruction per student. (See Table 4.8).

The overall increase in the number of staff across sites belies to some extent the original assumption underlying the Demonstration, i.e., that districts would make policy

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*Calculated by multiplying the number of students receiving compensatory language arts by the average amount of that instruction per day and the number of days that it was delivered.

**Exact estimates of the number of students receiving compensatory language arts instruction in 1976-77 are now being calculated and will be presented in a later report. The conclusion reached above is based on the total number of students served by Title I, some of whom may not be receiving language arts instruction. However, since the large majority of Title I dollars are earmarked for this type of instruction, and since the large majority of students served by Title I receive it, this tentative conclusion seems reasonable.

TABLE 4.7

CHANGES IN ELEMENTARY SCHOOL COMPENSATORY TEACHING STAFF ASSIGNED TO TITLE I STUDENTS*

DISTRICT/CRITERIA	NUMBER OF STAFF		PROPORTIONAL CHANGE**
	1975-75	1976-77	
Districts that serve low-achieving students in all elementary schools			
Adams County #12	5	12	140%
Harrison County	44	44	0%
Mesa	41	59	44%
Newport	7	19	171%
Racine	44	98	123%
Santa Fe	24	30	5%
Districts that rank schools by achievement and serve fewer than all elementaries			
Charlotte	236	249	6%
Winston-Salem	67	114	70%
Districts that rank schools primarily by poverty			
Berkeley County	41	40	-2%
Boston	438	515	18%
Houston	471	438	-7%
Districts making primarily intra-school changes			
Alum Rock	52	45	-13%
Yonkers	86	86	0%

*From district end-of-year reports submitted to NIE, June 1977.

**((1976-77)-(1975-76))/(1975-76)

TABLE 4.8

CHANGE IN STAFF/STUDENT RATIO
BETWEEN 1975-76 AND 1976-77

DISTRICT/CRITERIA*	STAFF PER 100 STUDENTS IN 1975-76	STAFF PER 100 STUDENTS IN 1976-77	PERCENT CHANGE IN STAFF/STUDENT RATIO**
Districts that serve low-achieving students in all elementary schools			
Adams County #12	.029	.020	-31
Harrison County	.031	.024	-23
Mesa	.016	.018	13
Racine	.058	.063	9
Santa Fe	.033	.026	-21
Districts that rank schools by achievement and serve fewer than all elementaries			
Charlotte	.037	.040	8
Winston-Salem	.037	.034	-8
Districts that rank schools primarily by poverty			
Berkeley County	.065	.036	-45
Boston	.043	.049	14
Houston	.024	.025	4
Districts making primarily intra-school changes			
Alum Rock	.013	.005	-62
Yonkers	.036	.030	-17

*Newport is excluded from analyses that depend on the Classroom Activities Log (CAL) because the sample of students receiving language arts instruction was too small to permit reliable estimates.

**((1976-77)-(1975-76))/(1975-76)

103

choices under a fixed allocation model. As noted in Chapter 2, districts have used carryover funds, reduced grade span coverage, and/or eliminated certain program activities in order to accommodate increases in the elementary language arts program. Whether or not such changes permit a long-term increase in total services may be questionable.

One final note should be made here. The extent to which allocation changes fully account for changes in the services received by students cannot be answered without final expenditure data for the first implementation year. These data are not yet available from all sites. Future reports will address the question of whether the change in overall services received are a function of simple redistribution of funds or more profound program delivery changes, including more effective staff utilization. In addition, while the relationship between change in the staff/student ratio and the change in the services received by the average student is fairly strong across districts, there is a great deal of variation by district in the relationship. Several factors may affect this relationship for a given district, including but not limited to use of non-Title I funds to supplement Title I services, change in duration of instruction over the course of the school year, and change in some of the quality indicators discussed above, e.g., group size and instructor type. These site-specific factors will also be explored and the results presented in future reports.

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ESEA TITLE I ALLOCATION POLICY: DEMONSTRATION STUDY

Results of First Year Implementation

APPENDICES TO PART I

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TABLE OF CONTENTS

APPENDICES

		Page
APPENDIX A:	TECHNICAL APPENDIX.	89
APPENDIX B:	PROCEDURES FOR ALLOCATING FUNDS WITHIN SCHOOL DISTRICTS UNDER STANDARD TITLE I REGULATIONS	111
APPENDIX C:	STUDENT CHARACTERISTICS	115
APPENDIX D:	CHANGES IN SERVICES	169
APPENDIX E:	STATEMENT OF DR. JAMES J. VANECKO BEFORE SUBCOMMITTEE ON ELEMENTARY, SECONDARY AND VOCATIONAL EDUCATION, UNITED STATES HOUSE OF REPRESENTATIVES.	269

APPENDIX A

TECHNICAL APPENDIX

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TECHNICAL APPENDIX

Introduction

The primary purpose of the Study of Demonstration Title I Compensatory Education Projects is to provide empirical information on the practical consequences of alternative within-district allocation policies for ESEA Title I. As part of this study quantitative data were obtained to address two major questions:

1. What effects do changes in Title I allocation policy have on the characteristics of students served by Title I and the other compensatory programs within the Demonstration districts?

2. What effects do changes in Title I allocation policy have on the instructional and support services experienced by students of different types within the Demonstration districts?

In addressing these seemingly simple questions we were led to a complex sampling and analytic approach. This came about as a result of two needs which became evident early in the study.

First, the districts were planning to implement a variety of allocation strategies (see Chapter 1). In order to accomplish these different strategies, and because we were concerned with changes in various types of Title I and non-Title I schools, we had to allow for different categories of schools for each site. It was impossible, therefore, to fix a single design that would encompass all of the different site strategies. The solution was to establish a general framework which allowed for a comparison of Title I and non-Title I students over the two years of the study. Modifications were made on a site-by-site basis to address specific concerns raised by a particular strategy. The general approach and the site-specific schema are given below.

The second need arose from the obvious fact that data would be required at various levels of the administrative structure. Thus, while the study was focused on children, it was necessary to obtain data from school officials and teachers to get an accurate picture of the changes that were occurring. The primary problem was one of scope. Simple descriptions, e.g., ethnic status, could easily be obtained at the school level for a large number of children. These required relatively uncomplicated judgments and did not require constant contact with the child. Other information, however, such as the amount of instruction a child was receiving could only be obtained through more in-depth observation of the child by a teacher. Obviously, the amount of effort required for this kind of measure limits the number of children that can be observed. The sampling procedure described in the next section was designed to provide information on the largest number of children for each variable, while maintaining enough overlap among the samples so that variables at various levels could be related to each other.

Sampling

This section provides a general overview of the sampling approach used in the Demonstration research. In particular, the various levels of sampling are described, and the instruments associated with each level are identified.* Specific details on the nature of the instruments and on the obtained sample sizes can be found in the various chapter appendices.

The initial 1975-76 sampling was accomplished in two stages:

- schools were sampled from each of three school types within each of the districts; and

*For a detailed discussion of the sampling procedures used see Francis X. Archambault and Nancy L. Ames, "Sampling and Instrumentation in the Title I Demonstration Study," paper presented at the annual meeting of the American Educational Research Association, April 1977.

- children were selected from the third and fourth grades within each of the sampled schools.

Each of these will be described in turn for the 1975-76 sample. Changes resulting from modifications in districts' plans will then be discussed. Finally, the 1976-77 sampling procedure will be described briefly.

School Selection

Since Title I services in the Demonstration districts, as in the large majority of districts receiving Title I funds, were concentrated in grades one through six, we concentrated our resources on elementary schools. Instruments targeted to this age group provided us with accurate and detailed information on a well-defined population of students and their activities.

For purposes of sampling and generalization, we defined an elementary school as any school containing grade three or grade four. Despite some nonstandard grade structure patterns within the Demonstration school districts, this definition was found to be consistent with existing organizational arrangements.

Within each Demonstration district some schools were expected to change their Title I status (receiving or not receiving funds) as a result of the waiver of federal regulations; others were not to change but to continue either receiving or not receiving funds as before. The research questions imply that we must compare the services received by children in different types (strata) of schools within each district. Based on district planning in 1975 it appeared that there would be three types of schools involved:

- schools that would receive Title I services in 1975-76 and would continue to receive them throughout the Demonstration;

- schools that would not receive Title I services in 1975-76 but would begin to receive them during the Demonstration; and
- schools that would not receive Title I services either before or during the Demonstration.

With this definition of school types, selection rates were set up to insure that the estimate of a variable, e.g., percentage poor, for any school type would be 95% certain to deviate by less than one-fourth of a standard deviation from the true, or population, parameter. In more technical terms, we tried to insure a 95% confidence interval that was one-half a standard deviation wide.

Classroom Rosters were completed for all students in the third and fourth grades in the sampled schools. These Rosters provided demographic descriptions of the students, as well as data on their Title I status and judged achievement level. The specific variables used in our analysis are presented in Chapter 3 and in Appendix C.

Student Selection

The second stage of sampling consisted of the selection of two students in each third and fourth grade classroom for further study. This decision was made for two reasons. First, the primary instrument for the measurement of services was the Classroom Activities Log (CAL). This instrument puts somewhat of a burden on the classroom teacher and would certainly interfere with regular activities if too many students had to be observed. Secondly, it was decided that variation among classrooms would be an important factor. With the large number of available classrooms, we had to sacrifice coverage of students within classrooms in order to obtain a reasonable estimate of variations between classrooms.

Student selection for the CAL was based whenever possible on the simple rule that one Title I and one non-Title I student were to be selected from each classroom. If there were no Title I students in the classrooms, then two non-Title I students were selected.

The CAL and Student School Record Information Form (SSRIF) were completed for each child in this sample. In addition, parent interviews were attempted for all students in Title I schools and all third graders in non-Title I schools for whom we had CALs.

Changes in School Types

As district plans became final it was evident that the three school types defined initially would not cover all the possible variations that resulted. The implementation proposals submitted by the 13 districts increased the number of school types from the original three to a rather complex set of ten. Much of this proliferation of school types was due to school closings and openings; some, however, was due to changes in implementation decisions. Charlotte and Winston-Salem, for example, eliminated Title I services for some schools. This had not been anticipated originally. In addition, Boston, Yonkers, Houston, and Alum Rock altered their plans in terms of the numbers of schools to be affected.

Table A-1 displays the new school type definitions and shows how they vary from district to district. A saturated school (see Alum Rock Types 1 and 2) is one in which all students receive Title I services; a concentrated school (see Alum Rock Types 9 and 0) is one in which only students having specific deficiencies in basic skill areas receive Title I. A "held harmless" school (see Houston Type 0) is one which qualified for Title I under poverty in 1975-76 but did not qualify under achievement in 1976-77. Services were delivered to the school in 1976-77, however, so that students previously served would not be deprived of Title I because of the

TABLE A-1

DEFINITIONS OF THE TEN SCHOOL TYPES RESULTING FROM THE DISTRICTS' FINAL IMPLEMENTATION PROPOSALS

ALL DISTRICTS EXCEPT ALUM ROCK:

Type	1975-76	1976-77
1	TI*	TI
2	NTI	TI
3	TI	NTI
4	NTI	NTI
5	new school	TI
6	new school	NTI
7	TI	closed
8	NTI	closed

ONLY ALUM ROCK:

1	TI	TI (saturated)
2	NTI	TI (saturated)
3	TI	NTI
4	NTI	NTI
5	new school	TI
6	new school	NTI
7	TI	closed
8	NTI	closed

DISTRICT	TYPE 9	TYPE 0
Houston	NTI, NTI (eligible under achievement but skipped)	TI, TI (held harmless)
Alum Rock	TI, TI (concentrated)	NTI, TI (concentrated)
Yonkers	TI, TI (Demonstration school)	NTI, TI (Demonstration school)
Boston	NTI, TI (Demonstration school)	--

*Entries indicate the Title I status of schools. A Title I school (TI) is one in which selected students receive Title I services. A non-Title I school (NTI) is one in which no students receive Title I services.

Demonstration. A "Demonstration School" (see Yonkers Types 9 and 0) is one in which whole or almost whole classrooms are served by Title I rather than the smaller number of students who usually receive Title I services in the district using a pull-out model. Finally, a "Demonstration School" in Boston means a school which did not qualify under poverty, but which did qualify under achievement.

The 1976-77 Sample

In Year 2 of the study, three of the Demonstration districts--Wichita, Freeport, and Oklahoma City--decided not to apply for second-year funding, thus reducing the number of sites to 13. The withdrawal from the Demonstration of these three districts left Racine as the Demonstration's only mid-western site. Since the original 16 districts were not selected at random, and since analyses are conducted at the site level, the consequences of the site reduction are minimal.

The sampling procedures used in 1976-77 were the same as those described for 1975-76, with several notable exceptions. Due to the nature of the Demonstration in Boston, Classroom Activity Log (CAL) data were collected only in the Type 9 schools. In Yonkers, and again due to the nature of the Demonstration, CAL data were collected only in Title I schools (Types 1, 2, 9 and 0). All other data for these two sites were collected as has been described. To gather CAL data in all "sample" schools in these sites would have diverted an undue proportion of project funds from the resolution of the primary research questions, all of which could be answered either with the data collected in 1976-77, or with data obtained in 1975-76.

General Design

As discussed in the preceding sections, the analyses described in this report were based on a classification of students in a district by Title I status and by school type.

The school type classification reflected the status of the particular school in question for the two years covered by this study. There were four possible general types, as displayed in Figure A-1 below.

FIGURE A-1
SCHOOL TYPE CLASSIFICATIONS

1975-76 School Type	1976-77 School Type: TI	1976-77 School Type: NTI
TI	1	3
NTI	2	4

School Type 1 had Title I in each of the two years, while School Type 4 had Title I in neither year. School Types 2 and 3 had Title I in one of the two years, but not both.

The major question addressed by the analyses was whether or not the characteristics of Title I students or the services received by Title I students changed over the two years of the study. The direct comparison of Title I students in 1975-76 and 1976-77 was supplemented by a comparison of non-Title I students over the same two years. This second contrast was used to help determine whether the differences observed between the Title I students over time were due to the Demonstration.

The strongest evidence for a change resulting from the Demonstration would be an observed change in Title I students over the two years, but little or no change in non-Title I students. More generally, however, any evidence of a differential change might be taken as evidence for an effect of the Demonstration. Thus, we could take as evidence those cases where changes in Title I students were of a different magnitude than the corresponding changes in non-Title I students. Figure A-2 presents some hypothetical data that might come from one of the sites.

FIGURE A-2

HYPOTHETICAL DATA

YEAR 1

Student Type	School Type 1 (TI/TI)	School Type 2 (NTI/TI)	
TI	45	X	45
NTI	20	25	22
	25	25	

YEAR 2

Student Type	School Type 1 (TI/TI)	School Type 2 (NTI/TI)	
TI	45	10	30
NTI	20	20	20
	25	18	

Row 1 gives the results for Title I students, while Row 2 gives the results for non-Title I students. Note that there has been a large decrease over the two years for Title I (45 - 30 = 15), but a small change for non-Title I (22 - 20 = 2). In this case, we would consider the change to be a result of, or at least related to, the Demonstration Project.

The statistical technique used to make these judgments was basically a t-test of differences. First, the difference between scores for Title I students in 1975-76 and scores for Title I students in 1976-77 was tested. Then the difference for non-Title I students was subtracted from this result to give an indication of the relative amount of change. Note that this yields a test of the difference of differences. In the example above the difference for the Title I students was 15, and the differences for non-Title I students was 2. The difference of these is 15 - 2 = 13. It is this final figure that tells how much greater the Title I change was than the non-Title I change. A simple t-test of this value was made.

While a difference among Title I groups that is larger than the corresponding difference among non-Title I groups is taken as an indication of a change related to the Demonstration, it is possible that purely ecological factors could account for the observed differences. Referring again to Figure A-2, note that the various values for Type 1

schools do not change over the two years. The overall average (column marginal) for Type 2 schools does, however, decrease substantially. This could account for the overall decrease observed for the Title I group, since the students from the Type 2 schools are included in the Year 2 estimate, but not the Year 1 estimate. To provide a clue to the possible occurrence of this phenomenon, we test the relative changes over time for the various school types. This consists of taking the change in Type 1 schools and comparing it to the change in Type 2 schools. If the changes are not parallel, we have reason for further examination of the data and the sources of population changes.

In spite of the apparent simplicity of this approach, the actual procedures employed involved a few important complications. These basically pertain to the estimates for Title I and non-Title I students in each of the two years. Note in Figure A-2 that these values often derived from several subgroups.

The value of 22 for non-Title I students in Year 1, for example, derived from two groups with values of 20 and 25, respectively. These groups were of different sizes so the overall estimate had to take into account this discrepancy in size, i.e., larger groups had to be given greater weight. In some of the analyses, the cell estimates were based on sample data, but a population estimate was desired. In such cases the sample estimates had to be combined in such a way as to take into account the population sizes. The weighting procedure used was the same whether population or sample estimates were used. It was incorporated in the general statistical methods as detailed below.

Statistical Methods

The analyses of change outlined above could be interpreted basically as a set of t-tests of differences. However, the implementation of these analyses on a computer demands a more structured approach to the computation of estimates. The

specific techniques used come under the general rubric of analysis of variance. They consisted of a series of planned comparisons designed to address the policy questions specified in the introduction to this appendix.

The planned comparisons approach used here departs somewhat from standard methods in that comparisons were not constrained to be independent or "orthogonal." Technically speaking, this lack of orthogonality could result in some minor redundancies in the questions asked of the data. We felt, however, that the simplicity and directness of the resulting comparisons outweighed the need for technical niceties.

In the planned comparisons approach, statistical tests are based on the weighted combination of cell means and variances. The two formulae used are:

$$1)\quad C = P_1\bar{X}_1 + P_2\bar{X}_2 + \ldots\ P_n\bar{X}_N$$

$$2)\quad F_c = C^2/\sigma_e^2\ \left(\Sigma\ \frac{P_i^2}{n_i}\right)$$

where:

C is the value of a comparison of interest, and F_c is its test;

P_i are weights, subject to $\sum_{i}^{N} P_i = 0$;

$\bar{X}_i$ are means;

σ_e^2 is the pooled within-group variance.

The formulae derive from the fact that the sampling variance of the comparison value C, of N independent means ($\bar{X}_i$) is:

$$\text{Var } C = P_1^2\ \text{Var}\ (\bar{X}_i) + P_2^2\ (\text{Var}\ \bar{X}_2) \ldots + P_N^2\ (\text{Var}\ \bar{X}_N)$$

$$= P_1^2 \left[\frac{\sigma 1^2}{n_1}\right] + P_2^2 \left[\frac{\sigma 2^2}{n_2}\right] + \ldots P_N^2 \left[\frac{\sigma N^2}{n_N}\right]$$

If it is assumed that $\sigma_1^2, \sigma_2^2 \ldots \sigma_N^2$ are the same, then

$$3)\quad \text{Var}\ (C) = \sigma_e^2 (P_1^2/n_1 + P_2^2/n_2 + \ldots P_N^2/n_N),$$

which is the denominator of formula (2) above. The null hypothesis tested by F_c is that, in the population, C = 0; i.e., the value of comparison shows no difference.

The use of this formula is straightforward and can be illustrated by examples taken from the analysis. The majority of the study sites had the configuration of cells shown in Figure A-3. They had two types of schools, one receiving Title I services both in 1975-76 and 1976-77, and the other receiving services only in the second year.

FIGURE A-3

Student Type	1975-76 School Type 1	1975-76 School Type 2	1976-77 School Type 1	1976-77 School Type 2
TI	A	X	D	F
NTI	B	C	E	G

The major comparison of interest was between characteristics of or services received by Title I students over the two years. Thus, a comparison of the mean of cell A with the mean of cells D and F combined was necessary. The relevant mean for the combination of D and F is found from the sum of all the observations in those cells divided by the total number of cases in the two cells, i.e.,

$$\bar{X}_{DF} = (T_D + T_F)/(N_D + N_F).$$

Subtracting this from $\bar{X}_A$ gives:

$$C = \bar{X}_A - (T_D + T_F)/(N_D + N_F).$$

Now, $T_F = (N_F)\ (\bar{X}_F)$ and $T_D = (N_D)(\bar{X}_D)$. Substituting gives:

$$C = \bar{X}_A - (N_D\bar{X}_D + N_F\bar{X}_F)/(N_D + N_F)$$

$$= \bar{X}_A - \left[\frac{N_D}{(N_D + N_F)}\ \bar{X}_D + \frac{N_F}{(N_D + N_F)}\ \bar{X}_F\right]$$

Now, letting $P_1 = 1$, $P_2 = \frac{-N_D}{N_D + N_F}$ and $P_3 = \frac{-N_F}{N_D + N_F}$,

we obtain using formula (3):

(i) $$\text{Var}\ (C) = \sigma_e^2 \left[\frac{1}{N_A} + \frac{N_D^2}{(N_D + N_F)^2 N_D} + \frac{N_F^2}{(N_D + N_F)^2 N_F}\right]$$

(ii) $$= \sigma_e^2 \frac{1}{N_A} + \frac{N_D}{(N_D + N_F)^2} + \frac{N_F}{(N_D + N_F)^2}$$

(iii) $$= \sigma_e^2 \left[\frac{1}{N_A} + \frac{(N_D + N_F)}{(N_D + N_F)^2}\right]$$

(iv) $$= \sigma_e^2 \left[\frac{1}{N_A} + \frac{1}{(N_D + N_F)}\right]$$

Actually, the direct application of the formula, as given in line (i) is used for the implementation of these types of analyses on computers. Line (iv) gives the variance in a form that is more familiar to users of t-tests with estimated variances.

Any comparisons among the cell means or of means of combinations of cells with means of other combinations can be developed in this manner. The weighting factors are then functions of the cell response frequencies. It is possible, however, to use weight factors that are not functions of the cell frequencies. This occurs in the CAL change analysis. Here, the

pupils are sampled within classrooms, whereas in the Roster data collection, whole classrooms were sampled. It was desirable, therefore, to weight the CAL observations to make them representative of total Rostered populations. In the CAL one might obtain, for instance, one Title I and one non-Title I child from a classroom while the Roster shows that there are five Title I and 15 non-Title I children in this classroom. To obtain an overall estimate of, say, length of instruction, it is necessary to weight the means one to three as suggested by the Roster, rather than one to one as obtained from the CAL.

This weighting scheme for the CAL analysis is easily implemented in the planned comparisons approach. All that is necessary is to use the alternative population sizes in the development of the weights. For example, suppose in Figure A-3 it is of interest to compare the Type 2 schools across years. This is a comparison of cell C with the combination of F and G. As before, the formula is:

$$C = P_1\bar{X}_C - (P_2\bar{X}_F + P_3\bar{X}_G).$$

As previously discussed the weighting of F to G of 1 to 3 is more appropriate than a weighting of 1 to 1. Hence, since $p_1 = 1$ and p_2 and p_3 should sum to -1, we set $p_1 = 1$, $p_2 = -1/4$, and $p_3 = -3/4$.

$$C = (1)\bar{X}_C - [(-1/4)\bar{X}_F + (-3/4)\bar{X}_G]$$

$$\text{Var } (C) = \sigma_e^2 [(1/N_C + (1/16)(1/N_F) + (9/16)(1/N_G)]$$

Although this approach provided most of the comparisons of substantive interest, there was an occasional need for a general test such as might be found in a standard analysis. Of particular interest was the interaction of school type and time. It was necessary to know whether changes over time were the same or different for different school types in order to assess whether a Title I change could be attributed to the allocation change, or rather to a change in the entire system.

For this test the method of unweighted means was used. Basically, the method treated each cell mean as a single observation in the computation of between-cell effects. The cell frequencies were used to compute adjustment factors which were applied to the mean square or the error term.

In the simple design of Figure A-4, the interaction effect is easily specified so that the planned comparison approach can be used. However, we will apply the method of unweighted means for illustrative purposes. The design is reduced by collapsing over Title I status to give:

FIGURE A-4

	1975-76 School Type 1	1975-76 School Type 2	1976-77 School Type 1	1976-77 School Type 2
	AB	C	DE	FG
N =	$N_A + N_B$	N_C	$N_D + N_E$	$N_F + N_G$
$\bar{X}$ =	$\bar{X}_{AB}$	$\bar{X}_C$	$\bar{X}_{DE}$	$\bar{X}_{FG}$

This is done by dividing the overall sum by the overall frequency for each combination of cells.

As in standard analysis the correction factor is computed first as the square of the sum of all the means divided by the number of cells:

$$K = (\bar{X}_{AB} + \bar{X}_C + \bar{X}_{DE} + \bar{X}_{FG})^2/4.$$

Remember that each mean is treated as <u>one</u> observation. The other effects are:

$$SS_{sch} = (\bar{X}_{AB} + \bar{X}_{DE})^2/2 + (\bar{X}_C + \bar{X}_{FG})^2/2 - K$$

$$SS_{year} = (\bar{X}_{AB} + \bar{X}_C)^2/2 + (\bar{X}_{DE} + \bar{X}_{FG})^2/2 - K$$

$$SS_{inter} = \bar{X}_{AB}^2 + \bar{X}_C^2 + \bar{X}_{DE}^2 + \bar{X}_{FG}^2 - SS_{sch} - SS_{year} - K.$$

These should be familiar from standard analysis approaches. The mean square for the interaction is simply: $MS_{inter} = SS_{inter}/df$. In this case, the interaction has only one degree of freedom so the mean square is the same as the sum of squares.

The adjustment factor is given as:

$$A = \tfrac{1}{4}\left[\frac{1}{N_A+N_B} + \frac{1}{N_C} + \frac{1}{N_D+N_E} + \frac{1}{N_F+N_G}\right].$$

This is a harmonic mean and, as can be seen, it is the mean of the reciprocals of the cell frequencies.

The adjustment factor is then either divided into the mean square interaction or multiplied by the error term. Since the mean square for the effect is eventually divided by the error term, it doesn't matter which is adjusted, as long as only one of the two is adjusted.

If an alternative weighting scheme is used, these must be incorporated into the adjustment term. For each combination of the form:

$$\bar{X}_C = P_1\bar{X}_A + P_2\bar{X}_B$$

the adjustment term is:

$$P_1^2/N_A + P_2^2/N_B$$

These are summed over all cells (combinations) and divided by the number of cells to give the adjustment factor. For the example above, this term would be:

$$A = \tfrac{1}{4}\left[P_1^2/N_A + P_2^2/N_B + 1/N_C + P_3^2/N_D + P_4^2/N_E + P_5^2/N_F + P_6^2/N_G\right]$$

where $P_1 \ldots P_6$ are predetermined weights used to combine the cell means into the marginal means.

Specific Comparisons

As mentioned above, sites differed in the types of changes that were planned and, therefore, in the types and numbers of comparisons that could be applied to them. There were, in fact, two major patterns of analysis and five unique patterns. These are presented in detail in Figures A-5 to A-10, along with the comparisons that were applied to each. For each pattern the various cells of the design are identified by letters. These letters are then used to describe the comparisons. When letters are presented together, e.g., DF, the corresponding cells have been pooled for the comparison in question. For example, A-DF means that cells D and F have been pooled and compared with cell A. These comparisons include the two major comparisons that were used to make an assessment of Demonstration-related changes. These are labeled "change" and "systemic" in the figures.

The comparison labeled "interaction" is computed as described above. Note that many more comparisons are shown than are discussed in this report. These are, for the most part, specific to the particular site and do not figure in the overall analysis.

Special Analytic Procedures: Coverage

The coverage analysis presents a departure from the general trend of the analyses. Where the other analyses focus on describing the characteristics of the various design cells, the coverage analysis focuses on the proportion of the various demographic groups that are served by Title I.

Since the analysis does not involve statistical tests, only estimation problems are at issue. These relate to the representativeness of the estimate for the site. Since the data were gathered by school, sampling fraction and response rate estimates for school types were used in the computations. Basically, a total number of students of a certain type is

computed by adjusting the number obtained for each school type and summing over all types.

For instance, for determining the total number of poor students in the district, the following formula holds:

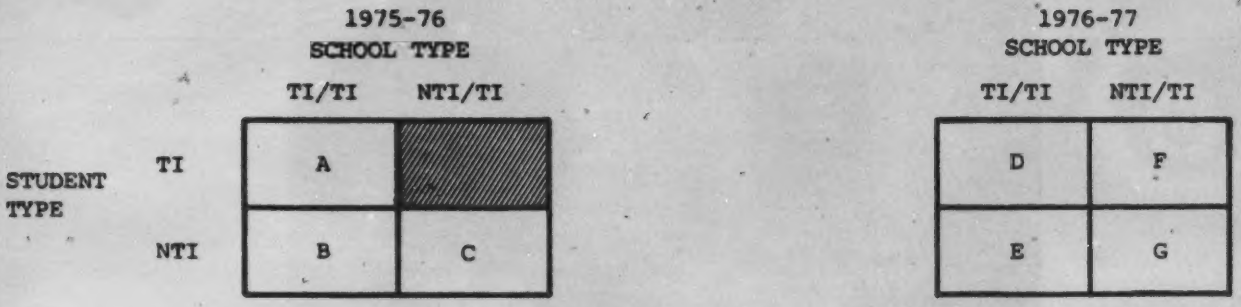
$$\begin{aligned} \text{TOTAL POOR} &= \text{N Poor}_A \div (SF_A \times RR_A) \\ &+ \text{N Poor}_B \div (SF_B \times RR_B) \\ &\vdots \\ &+ \text{N Poor}_N \div (SF_N \times RR_N) \end{aligned}$$

where A...N represent school types as currently designated, SF represents the sampling fraction for the school type (i.e., # schools in sample ÷ universe of schools for that type), and RR represents the response rate for the school type (i.e., the percentage of sampled teachers returning a Roster).

By appropriately defining and computing different totals, we could by division estimate rates of coverage for various characteristics. Taking the above example a step further, we computed a # POOR SERVED BY TITLE I. Dividing this by the TOTAL POOR gave us a percentage of the poor students covered by Title I.

FIGURE A-5

DESIGN AND COMPARISONS FOR
DIRECT ALLOCATION SITES*



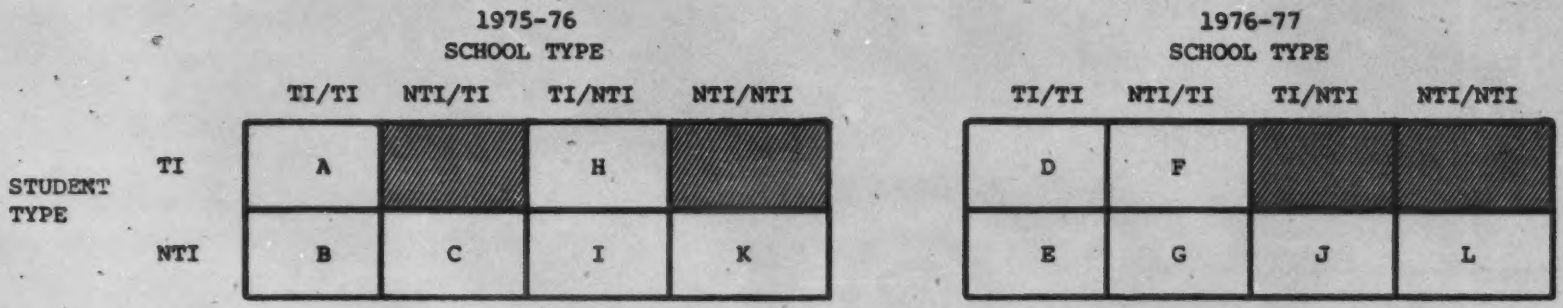
COMPARISONS

A-DF, Change
A-DF - (BC-EG), Systemic
D-F
D-F - (E-G)
A-D
A-D - (B-E)
Interaction

*Adams County #12
Harrison County
Mesa
Newport
Racine
Santa Fe

FIGURE A-6

DESIGN AND COMPARISONS FOR
ACHIEVEMENT ALLOCATION SITES*



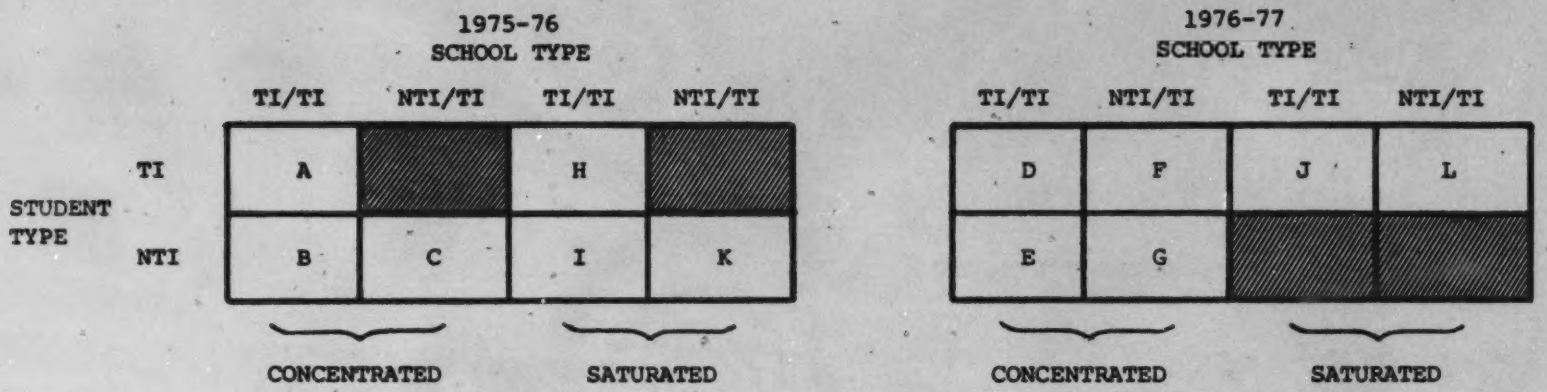
COMPARISONS

AH-DF, Change
AH-DF - (BCIK - EGJL), Systemic
D-F
D-F - (E-G)
A-D
A-D - (B-E)
H-F
H-F - (I-G)
Interaction

*Charlotte
Winston-Salem

FIGURE A-7

DESIGN AND COMPARISONS FOR
ALUM ROCK

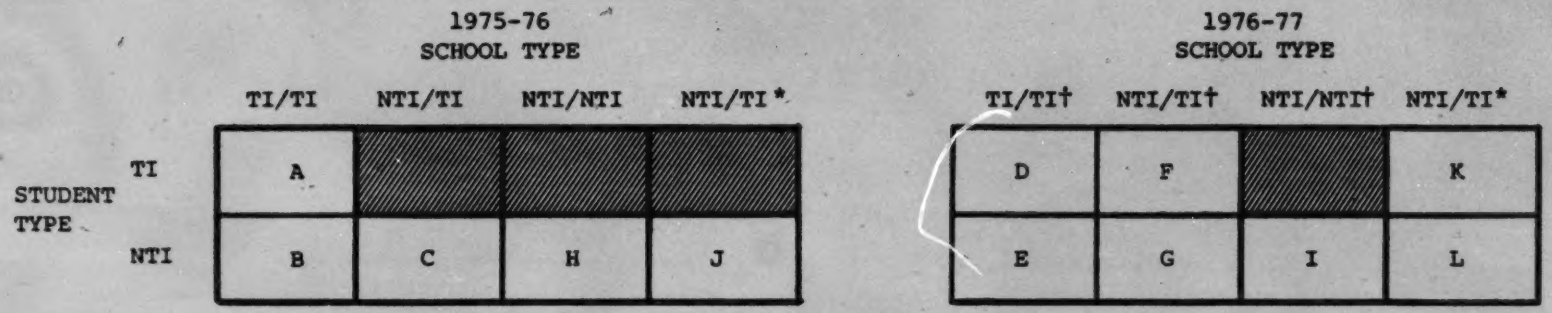


COMPARISONS

AH-DFJL, Change
AH-DFJL - (BCIK-EG), Systemic
D-J
F-L
A-D
A-D-(B-E)
H-J
Interaction

FIGURE A-8

DESIGN AND COMPARISONS FOR BOSTON



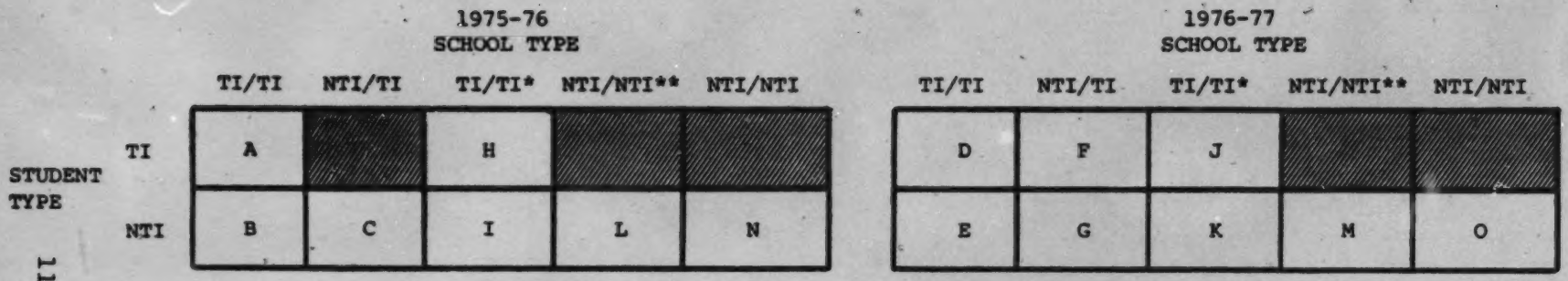
ROSTER COMPARISONS

A-DFK, Change
A-DFK - (BCHJ-EGIL), Systemic
AB-DE - (CHJ-FGIKL)
DF-K
DF-K - (EG-L)
D-F
D-F - (E-G)
A-D
A-D - (B-E)
I-KL
Interaction

*Demonstration
†Roster only

FIGURE A-9

DESIGN AND COMPARISONS FOR
HOUSTON



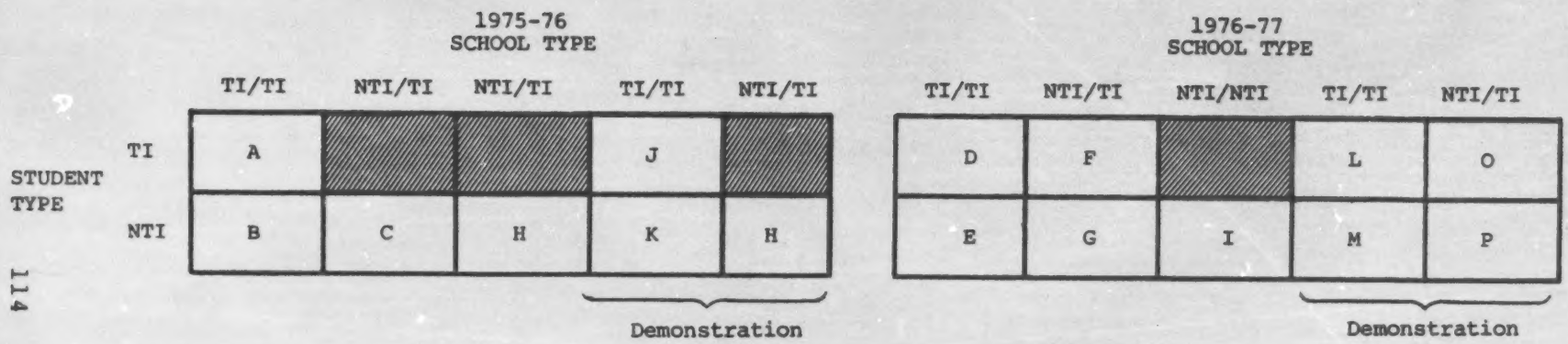
COMPARISONS

AH-DFJ, Change
AH-DFJ - (BCILN-EGKMO), Systemic
DF-J
DF-J - (EG-K)
A-D
A-D - (B-E)
H-J
H-J - (I-K)
Interaction

*Held harmless
**Skipped

FIGURE A-10

DESIGN AND COMPARISONS FOR
YONKERS



COMPARISONS

AJ-DFLO, Change
AJ-DFLO - (BCHEN-EGIMP), Systemic
ABJK-DELM - (CHN-FGIOP)
DF-LO
DF-LO - (EG-MP)
AJ-DL
AJ-DL - (BK-EM)
D-F
D-F - (E-G)
J-L
J-L - (K-M)
A-D
A-D - (B-E)
L-O
L-O - (M-P)
DE-LM
FG-OP
FGOP-I
Interaction

APPENDIX B

PROCEDURES FOR ALLOCATING FUNDS WITHIN SCHOOL DISTRICTS UNDER STANDARD TITLE I REGULATIONS

APPENDIX B

PROCEDURES FOR ALLOCATING FUNDS WITHIN SCHOOL DISTRICTS UNDER STANDARD TITLE I REGULATIONS

Having received a Title I allocation, an LEA must select schools eligible for Title I-funded services, target specific schools from among those deemed eligible, and determine which students within those schools will receive services. A brief discussion of these procedures follows.

CHOOSING ELIGIBLE SCHOOLS

The basic requirement governing selection of schools by an LEA is that school attendance areas must be selected that have high concentrations of children from low-income families. The term "attendance areas" is used in the statute because all needy children living in a targeted attendance area are potentially eligible for services regardless of which public or private school they attend. Other provisions of the law, as well as U.S. Office of Education regulations, serve to interpret and explain this requirement.

Basically, an LEA is required to select one or several measures of poverty to determine the number of children, aged five to 17, from poor families residing in the LEA as a whole and in each attendance area. Each attendance area with a percentage of poor children at least as high as the average for the district is eligible; alternatively, an LEA can choose to rank areas based on the number rather than the percentage of poor children, deeming eligible those areas that have a number of poor children at least as high as the average number per attendance area in the LEA. Both methods may be used simultaneously. An LEA can declare schools eligible that have either large numbers or high concentrations of poor children, as long as the total number of attendance areas selected by the combined method does not exceed the number that could have been chosen by either method alone.

The Three-Year Hold-Over Option

This procedure was introduced by the Education Amendments of 1974, and provided that a school attendance area that fails to meet the eligibility criteria, but that met such criteria and received Title I services in either of the two preceding fiscal years, shall be eligible. The Congressional intent was to give continuity to Title I programs through sustained eligibility.

The Selection of Poverty Measures

In selecting the poverty measure that will define poverty levels for the various school attendance areas, the LEAs can use one or more of several measures. Counts of children from low-income families are given priority in the regulations. Where these are not available, LEAs may use the number of children in families receiving Aid to Families With Dependent Children (AFDC), the number of children eligible for free or reduced-price lunch, "or any other reliable and uniform indicator of poverty." LEAs may use one or a combination of indices, but they must be applied uniformly throughout the school district.

Eligibility by Actual Attendance

The Education Amendments of 1974 provided that an LEA could, at its discretion, declare any school eligible for Title I funds in which:

> ...the proportion of children in actual average daily attendance from low-income families is substantially the same as the proportion of such children in (an eligible attendance area) of that agency.

The amendments reflect a Congressional concern that in an attendance area in which children of poor families constitute only a small percentage of children resident in the area, but in which large numbers of nonpoverty children do not attend the local schools, the attendance areas would be

ineligible despite the fact that the children of poor families constitute a high percentage of the children in actual attendance. The amendment enables such a school to be eligible for Title I funds.

The "No-Wide-Variance" Option

Another option available to some LEAs is the "no-wide-variance" rule:

> In certain areas, the whole of a school district may be regarded as (an) area having a high concentration...(of) children (of low-income families) and be approved as a project area, but only if there are not wide variances in the concentrations of such children among the several school attendance areas in the school district.

Thus, if an LEA can establish to the satisfaction of its State Education Agency (SEA) that there are "no wide variances," all attendance areas become eligible. Under the new regulations, the standard is that the variation between the highest and lowest percentage of children from low-income families is not more than one-third the average of low-income cildren for the district as a whole.

Thirty-Percent Rule

A final option formerly described in Title I ESEA: Selecting Target Areas, and currently appearing in the revised 1976 regulations, is that with the approval of the SEA, "... an area with 30% or more of the children from such (low-income) families" may be designated as a project area. (For this purpose, the children include only those eligible for free lunch.) This rule apparently originated following expressed Congressional concern that inflexible targeting regulations could result in an LEA with a high incidence of poverty declaring schools ineligible with 25% or 30% low-income enrollment, although a neighboring district with a lower incidence of poverty might declare a school eligible with only 10% low-income enrollment.

Finally, LEAs may apply any or all of these provisions separately to groups of schools (e.g., elementary, junior high or middle schools, and high schools).

SELECTING SCHOOLS

Having developed its list of eligible attendance areas, the LEA must choose which schools it will "target"--that is, fund. The law and regulations impose two constraints on LEAs in choosing which of the eligible schools to fund.

One is the so-called "no-skip" provision, formerly articulated by the Office of Education in Program Guide No. 44, Section 4.6, and presently appearing in the 1976 revised regulations. In general, the no-skip provision provides that an LEA cannot designate an eligible school attendance area as an area to be served by a program unless all attendance areas with a higher percentage or number of children from low-income families have been so designated. The new regulations now provide that an attendance area need not be targeted, i.e., it may be "skipped," if the LEA can demonstrate that educational need is greater in other, lower ranked eligible areas.

The second constraint is the requirement that every Title I program be "...of sufficient size, scope, and quality to give reasonable promise of substantial progress toward meeting (the needs of educationally deprived children)." This is the "concentration" requirement and requires that districts limit the number of schools actually served to a number consistent with quality programs.

STUDENT ELIGIBILITY AND SELECTION

Although attendance area eligibility is determined by economic criteria, student eligibility is based on low achievement. Title I-eligible children are described by existing regulations as:

> ...those children who have need for specific educational assistance in order that their

> level of educational attainment may be raised to that appropriate for children of their age.

The final step in the process is the selection of children to be served from among those who are eligible and the determination of the amount and type of service each should receive. Specifically, the regulations provide that:

> The project for which an application for a grant is made by a Local Education Agency should be designed to meet the special educational needs of those educationally deprived children who have the greatest need for assistance.

Thus, those children with the most severe degree of educational deprivation should be given priority for services.

> The project (shall be) concentrated on a sufficiently limited number of services for a sufficiently limited number of educationally deprived children.

This is the "concentration" provision at the student level which, as is apparent, leaves a great deal of discretion to the individual LEA.

APPENDIX C

STUDENT CHARACTERISTICS

APPENDIX C

Appendix C contains materials referenced in Chapter 3, Student Characteristics and Coverage. These include:

1. A brief discussion of the data sources, sample, and variables employed in the analysis of student characteristics (Tables C-1 to C-5).

2. Changes in Title I students' achievement, based on the CAL achievement subsample (Table C-6).

3. Correlations between teacher judgment achievement levels and actual achievement scores (Table C-7).

4. Results of changes in proportions of poor students using alternative cutoff points of the CSA/Orshansky Poverty Index (Table C-8).

5. A description of the techniques used to analyze changes in student characteristics and coverage with an enumeration of the student selection contrasts made within each site (Table C-9).

6. By-site narratives of changes in characteristics with accompanying tables (Tables C-10 to C-22).

APPENDIX C

DATA SOURCES, SAMPLES, AND VARIABLES

Three sources of data were utilized for the analysis of student characteristics:

- the Classroom Roster,
- the Student School Record Information Form (SSRIF), and
- the Parent Interview.

Each of these instruments was administered to a different sample of respondents and serves a slightly different purpose than the other two data sources. The Roster was designed to obtain information on the universe of third and fourth grade students in sample schools. The Roster, therefore, provides the broadest base for estimating student characteristics. The SSRIF was intended to supplement the Classroom Roster data for a subsample of the rostered students. This subsample consists of two students randomly selected from each rostered classroom.* The sampling design for the Parent Interview paralleled the one described for the SSRIF with the exception that no parents of fourth grade non-Title I students were interviewed. The Parent Interview yielded the most in-depth information on the socio-economic characteristics of students, although the sample on which the data were gathered was somewhat limited.

Tables C-1 through C-3 present sample sizes for each of the three data sources. Table C-4 briefly describes each of the variables developed from these instruments.

The poverty threshold variable was based on the Community Services Administration (CSA) version of the Orshansky poverty index. This scale provides income thresholds of poverty which vary both by family size and farm/non-farm occupational category. Because less than one percent of the parents

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*In classes with both Title I and non-Title I students, one student was randomly selected from each group. In classes with only Title I or non-Title I students, two students were drawn at random.

TABLE C-1

SAMPLE SIZES FOR THE CLASSROOM ROSTER BY SCHOOL TYPE AND STUDENT TYPE: PRE-DEMONSTRATION AND DURING THE DEMONSTRATION

DISTRICT	TITLE I STATUS	PRE / DEMO	COMMON SCHOOL TYPES				DISTRICT SPECIFIC SCHOOL TYPES	
			1	2	3	4	9	0
ADAMS COUNTY #12	Title I	Pre	42					
		Demo	45	167				
	Non-Title I	Pre	311	1,586				
		Demo	376	1,687				
ALUM ROCK	Title I	Pre	393				209	
		Demo	685	984			556	386
	Non-Title I	Pre	244	932			267	326
		Demo					64	52
BERKELEY COUNTY	Title I	Pre	197					
		Demo	383					
	Non-Title I	Pre	906			559		
		Demo	755			347		
BOSTON	Title I	Pre	787				148	
		Demo	800	163		997		
	Non-Title I	Pre	1,121	315		1,133	384	
		Demo	972	256		997	483	
CHARLOTTE	Title I	Pre	772		259			
		Demo	1,062	711		767		
	Non-Title I	Pre	1,680	2,640	824	846		
		Demo	2,266	196	887	767		
HARRISON COUNTY	Title I	Pre	355					
		Demo	359	119				
	Non-Title I	Pre	942	594				
		Demo	900	397				
HOUSTON	Title I	Pre	1,426					224
		Demo	1,694	199				250
	Non-Title I	Pre	1,793	683		8,882	1,927	331
		Demo	2,153	330		3,605	1,739	390
MESA	Title I	Pre	485					
		Demo	287	133				
	Non-Title I	Pre	1,132	1,246				
		Demo	1,398	1,291				
NEWPORT	Title I	Pre	53					
		Demo	25	74				
	Non-Title I	Pre	114	483				
		Demo	113	386				
RACINE	Title I	Pre	105					
		Demo	137	257				
	Non-Title I	Pre	990	1,853				
		Demo	1,056	1,715				
SANTA FE	Title I	Pre	306					
		Demo	310	70				
	Non-Title I	Pre	805	591				
		Demo	744	538				
WINSTON-SALEM	Title I	Pre	597		80			
		Demo	367	484				
	Non-Title I	Pre	983	2,227	320	1,287		
		Demo	1,159	1,700	421	1,356		
YONKERS	Title I	Pre	373				168	
		Demo	360	62			228	303
	Non-Title I	Pre	99	109		1,230	79	323
		Demo	246	67		1,998	52	122

KEY TO SCHOOL TYPES

School types are assigned contingent upon the status of the school during the first two years of the Demonstration. With the exception of four sites the common school types are:

SCHOOL TYPE	SCHOOL STATUS 1975-76	1976-77
1	TI	TI
2	WTI	TI
3	TI	WTI
4	WTI	WTI

For the other sites with additional or non-comparable types (Alum Rock) the assignments are:

DISTRICT	SCHOOL TYPE	SCHOOL STATUS 1975-76	1976-77	
Alum Rock	1	TI	TI	- saturated
	2	WTI	TI	- saturated
	9	TI	TI	- concentrated
	0	WTI	TI	- concentrated
Boston	9	WTI	TI	- Demonstration school
Houston	9	WTI	WTI	- skipped in allocation
	0	TI	TI	- held harmless
Yonkers	9	TI	TI	- Demonstration school
	0	WTI	TI	- Demonstration school

TABLE C-2

SAMPLE SIZES FOR THE STUDENT SCHOOL RECORD INFORMATION FORM (SSRIF) BY SCHOOL TYPE AND STUDENT TYPE: PRE-DEMONSTRATION AND DURING THE DEMONSTRATION

DISTRICT	TITLE I STATUS	PRE / DEMO	COMMON SCHOOL TYPES				DISTRICT SPECIFIC SCHOOL TYPES	
			1	2	3	4	9	0
ADAMS COUNTY #12	Title I	Pre	8					
		Demo	7	33				
	Non-Title I	Pre	13	80				
		Demo	23	89				
ALUM ROCK	Title I	Pre	12				12	
		Demo	46	64			17	17
	Non-Title I	Pre	10	39			8	11
		Demo	0	0			9	11
BERKELEY COUNTY	Title I	Pre	24					
		Demo	37			0		
	Non-Title I	Pre	44			20		
		Demo	50			28		
BOSTON	Title I	Pre	47					
		Demo					17	
	Non-Title I	Pre	62	26		88	24	
		Demo					22	
CHARLOTTE	Title I	Pre	80		35			
		Demo	108	82	0	0		
	Non-Title I	Pre	81	168	35	58		
		Demo	129	100	63	58		
HARRISON COUNTY	Title I	Pre	37					
		Demo	47	21				
	Non-Title I	Pre	21	17				
		Demo	51	22				
HOUSTON	Title I	Pre	77					8
		Demo	112	19				13
	Non-Title I	Pre	80	32		435	109	14
		Demo	119	17		240	104	18
MESA	Title I	Pre	41					
		Demo	45	26				
	Non-Title I	Pre	53	71				
		Demo	67	53				
NEWPORT	Title I	Pre	4					
		Demo	14	6				
	Non-Title I	Pre	4	38				
		Demo	14	12				
RACINE	Title I	Pre	30					
		Demo	25	64				
	Non-Title I	Pre	40	134				
		Demo	25	84				
SANTA FE	Title I	Pre	45					
		Demo	52	13				
	Non-Title I	Pre	47	50				
		Demo	50	27				
WINSTON-SALEM	Title I	Pre	49		12			
		Demo	56	79	0	0		
	Non-Title I	Pre	53	141	10	68		
		Demo	57	110	23	98		
YONKERS	Title I	Pre	10				5	
		Demo	21	11		0	17	16
	Non-Title I	Pre	6	4		69	5	8
		Demo	17	13		10	3	6

KEY TO SCHOOL TYPES

School types are assigned contingent upon the status of the school during the first two years of the Demonstration. With the exception of four sites the common school types are:

SCHOOL TYPE	SCHOOL STATUS 1975-76	1976-77
1	TI	TI
2	NTI	TI
3	TI	NTI
4	NTI	NTI

For the other sites with additional or non-comparable types (Alum Rock) the assignments are:

DISTRICT	SCHOOL TYPE	SCHOOL STATUS 1975-76	1976-77	
Alum Rock	1	TI	TI	- saturated
	2	NTI	TI	- saturated
	9	TI	TI	- concentrated
	0	NTI	TI	- concentrated
Boston	9	NTI	TI	- Demonstration school
Houston	9	NTI	NTI	- skipped in allocation
	0	TI	TI	- held harmless
Yonkers	9	TI	TI	- Demonstration school
	0	NTI	TI	- Demonstration school

TABLE C-3

SAMPLE SIZES FOR THE PARENT INTERVIEW BY SCHOOL TYPE AND STUDENT TYPE: PRE-DEMONSTRATION AND DURING THE DEMONSTRATION

DISTRICT	TITLE I STATUS	PRE / DEMO	COMMON SCHOOL TYPES				DISTRICT SPECIFIC SCHOOL TYPES	
			1	2	3	4	9	0
ADAMS COUNTY #12	Title I	Pre	6					
		Demo	6	32				
	Non-Title I	Pre	11	26				
		Demo	7	38				
ALUM ROCK	Title I	Pre	19				11	
		Demo	44	59			21	16
	Non-Title I	Pre	14	33			11	8
		Demo					7	4
BERKELEY COUNTY	Title I	Pre	10					
		Demo	36					
	Non-Title I	Pre	10			13		
		Demo	22			16		
BOSTON	Title I	Pre	65				19	
		Demo						
	Non-Title I	Pre	41	13		55	17	
		Demo					10	
CHARLOTTE	Title I	Pre	73		30			
		Demo	109	83		0		
	Non-Title I	Pre	45	92	29	25		
		Demo	71	66	68	38		
HARRISON COUNTY	Title I	Pre	47					
		Demo	52	21				
	Non-Title I	Pre	47	42				
		Demo	27	10				
HOUSTON	Title I	Pre	87					14
		Demo	136	19				21
	Non-Title I	Pre	56	39		221	52	10
		Demo	69	9		128	57	10
MESA	Title I	Pre	43					
		Demo	51	35				
	Non-Title I	Pre	31	41				
		Demo	45	29				
NEWPORT	Title I	Pre	5					
		Demo	5	18				
	Non-Title I	Pre	2	18				
		Demo	2	10				
RACINE	Title I	Pre	23					
		Demo	35	70				
	Non-Title I	Pre	21	63				
		Demo	20	49				
SANTA FE	Title I	Pre	43					
		Demo	51	24				
	Non-Title I	Pre	18	28				
		Demo	26	14				
WINSTON-SALEM	Title I	Pre	47		10			
		Demo	57	58				
	Non-Title I	Pre	27	74	3	38		
		Demo	33	51	18	56		
YONKERS	Title I	Pre	11				10	
		Demo	25	5			17	17
	Non-Title I	Pre	1	1		33	3	6
		Demo	12	2			2	6

KEY TO SCHOOL TYPES

School types are assigned contingent upon the status of the school during the first two years of the Demonstration. With the exception of four sites the common school types are:

SCHOOL TYPE	SCHOOL STATUS 1975-76	SCHOOL STATUS 1976-77
1	TI	TI
2	NTI	TI
3	TI	NTI
4	NTI	NTI

For the other sites with additional or non-comparable types (Alum Rock) the assignments are:

DISTRICT	SCHOOL TYPE	SCHOOL STATUS 1975-76	SCHOOL STATUS 1976-77
Alum Rock	1	TI	TI - saturated
	2	NTI	TI - saturated
	9	TI	TI - concentrated
	0	NTI	TI - concentrated
Boston	9	NTI	TI - Demonstration school
Houston	9	NTI	NTI- skipped in allocation
	0	TI	TI - held harmless
Yonkers	9	TI	TI - Demonstration school
	0	NTI	TI - Demonstration school

TABLE C-4

SUMMARY OF VARIABLES USED IN THE ANALYSIS OF STUDENT CHARACTERISTICS

VARIABLE	DESCRIPTION	DATA SOURCE
POVERTY		
• Free Lunch Program	1=student participates in free lunch program 0=student does not participate in free lunch program	Classroom Roster
• AFDC Status	1=family receives AFDC 0=family does not receive AFDC	SSRIF
• Poverty Threshold	1=family below poverty threshold 0=family above poverty threshold	Parent Interview
READING ACHIEVEMENT		
• Based on teacher evaluation	1=one or more years below grade level, based on teacher judgment of student performance 0=not one or more years below grade level	Classroom Roster
• Based on form and type of standardized achievement test used in Demonstration District*	Actual Achievement Score	SSRIF/Special Data Collection
	Grade Equivalent Dichotomy: 1=one year or more below grade level 0=not one or more years below grade level	SSRIF/Special Data Collection
OTHER DEMOGRAPHIC VARIABLES		
• Race/Ethnicity	1=All other races 0=White	Classroom Roster

*For more information see technical report, James J. Vanecko, et al., ESEA Title I Allocation Policy: Demonstration Study--Analysis of Baseline Data, Volumes I and II (Abt Associates Inc.: Cambridge, Mass., October 1977).

in the Demonstration Study sample were farmers, these were excluded from this analysis. Table C-5 displays the poverty thresholds for non-farm families of various sizes. The poverty variable was constructed by assigning households of a given size to a poverty dichotomy if houshold income fell below the appropriate threshold. The CSA version of the Orshansky Index has three major advantages as an SES measure. First, it is used by the CSA in the administration of federal programs. It is, therefore, a widely used measure in studies of a policy-relevant nature. Second, it is scaled for family sizes greater than seven, a relatively common occurrence in the sample of parents from the Demonstration sites. Finally, it is updated annually to reflect changes in the Consumer Price Index.

TABLE C-5

POVERTY THRESHOLDS BY FAMILY SIZE*

FAMILY SIZE	NON-FARM THRESHOLD**
2	$ 3,410
3	4,230
4	5,050
5	5,870
6	6,690
7	7,510
8	8,330
9	9,150
10	9,970
11	10,790
12	11,610
13	12,430
14	13,250

*Source: The Measure of Poverty: A Report to Congress as Mandated by the Education Amendments of 1974, HEW (April 1976). U.S. Government document 017-046-00039-0. PP. 14-17.

**Alternate thresholds were computed as proportions of this baseline income.

TABLE C-6

CHANGE IN TITLE I STUDENTS' ACHIEVEMENT[A]

DISTRICT/CRITERIA	CHANGES IN STANDARD TEST SCORES (SSRIF/SPECIAL DATA COLLECTION)	CHANGE IN PROPORTION READING ONE YEAR OR MORE BELOW GRADE LEVEL	
		ACHIEVEMENT TEST SCORE (SSRIF/SPECIAL DATA COLLECTION)	TEACHER JUDGMENT (CLASS ROSTER)
Districts that serve low-achieving students in all elementary schools			
Adams County #12	B	B	-9
Harrison County	B	B	1
Mesa	B	B	18*[D]
Newport	-24.4	-2	13*[D]
Racine	5.4*	0	-2
Santa Fe	18.6	-36	7*[D]
Districts that rank schools by achievment and serve fewer than all elementaries			
Charlotte	.1	C	-4*
Winston-Salem	-8.2	14	15*[D]
Districts that rank schools primarily by poverty			
Berkeley County	2.1	2	-12*
Boston	X	X	-1
Houston	-4.2 (gr. 3)	18.3*[D] (gr. 3)	0
	0 (gr. 4)	-1.6 (gr. 4)	
Districts making primarily intra-school changes			
Alum Rock	-5.4	-30	5*[D]
Yonkers	-1.7	-26	10*

A = Results for mean achievement scores and grade equivalent reading should be in opposite directions, i.e., a greater proportion of poor readers imply a lower mean. Also, standard scores scales vary. Large differences may be trivial.

B = Not available because of change in test and/or date of administration.

C = No grade equivalence conversion possible.

D = Title I Δ is Demonstration related.

* = Title I Δ is significant at .05.

TABLE C-7

CORRELATIONS BETWEEN ROSTER TEACHER JUDGMENT READING ACHIEVEMENT AND ACTUAL ACHIEVEMENT SCORES FOR THE CAL ACHIEVEMENT SUBSAMPLE

DISTRICT/CRITERIA	YEAR	
	YEAR 1	YEAR 2
Districts that serve low-achieving students in all elementary schools		
Adams County #12	.74	.84
Harrison County	A	A
Mesa	B	B
Newport	.63	.50
Racine	.70	.56
Santa Fe	.72	.64
Districts that rank schools by achievement and serve fewer than all elementaries		
Charlotte	.76	.78
Winston-Salem	.66	.74
Districts that rank schools primarily by poverty		
Berkeley County	.59	.63
Boston	.63	.74
Houston	.58	.56
Districts making primarily intra-school changes		
Alum Rock	.68	.71
Yonkers	.56	.39
MEAN r	.66	.64

A = Not available because of change of test and/or date of administration.

B = Not available because of use of criterion referenced testing.

Proportion in Poverty: Results Using Alternative Cut Offs

Other income cut offs may have produced slightly varying results. Table C-8 shows the Title I change in proportion in poverty using three different poverty income levels: 75%, 125%, and 150% of the original CSA/Orshansky poverty variable. The majority of the changes for all cut offs confirm the original finding--a decrease in poor Title I students during the Demonstration.

TABLE C-8

PERCENTAGE OF TITLE I STUDENTS IN THE DEMONSTRATION DISTRICTS FROM FAMILIES BELOW VARIOUS INCOME LEVELS

DISTRICT/CRITERIA	BELOW 100% ORSHANSKY			BELOW 75% ORSHANSKY CHANGE	BELOW 125% ORSHANSKY CHANGE	BELOW 150% ORSHANSKY CHANGE
	1975-76 (PERCENT)	1976-77 (PERCENT)	CHANGE			
Districts that serve low-achieving students in all elementary schools						
Adams County #12	17	2	-15	--	-14	-28
Harrison County	41	35	-6	-9	-6	-2
Mesa	14	12	-2	-3	-6	+3
Newport*	60	38	-22	-50**	-30	-20
Racine	13	15	2	0	-10	-1
Santa Fe	63	36	-27**	-24**	-23**	-18**
Districts that rank schools by achievement and serve fewer than all elementaries						
Charlotte	41	38	-3	-10†	-10	-4
Winston-Salem	34	31	-3	-8	4	4
Districts that rank schools primarily by poverty						
Berkeley County*	13	39	26	22	-6	-3
Boston***	--	--	--	--	--	--
Houston	49	52	3	-6	-5	-2
Districts making primarily intra-school changes						
Alum Rock	48	32	-16	-9	-19†	-12
Yonkers	38	25	-13	-19**	-29†	-21
Average	36	29	-6	-11	-13	-9

*Sample sizes too small to be reliable.

**Significant a $P \leq .05$.

***Change measures were not available because parent data in Boston were collected only for new schools in Year 2.

†Significant at $P \leq .05$, but accompanied by change in the non-Title I group.

Characteristics and Coverage: By-Site Narratives

In the narratives and tables that follow we present the results for changes in characteristics (selectivity) for each site. Each narrative includes the tabular results of the characteristics analysis. For each of the three student characteristics discussed, the relevant student-by-school type design is presented. Within each cell of this design, the proportion of students with each characteristic is displayed. Where changes in the characteristics of Title I students are found, we explore two possible reasons for these changes.

The first possible reason was a change in the process of selecting students. This alternative was approached in two ways. First we looked for changes in student selection rates within schools that retained Title I services over the two years. This gave control over variations due to school differences. If a difference was found among Title I students that was not paralleled by a difference among non-Title I students we had reason to believe that a change in student selection practices was influencing the changes in the characteristics of the Title I group. Secondly, we compared student selection rates in different types of Title I schools in Year 2 (1976-77). This, while allowing school variations, provided some control over temporal variations. Here a difference between Title I students that was divergent from the difference among non-Title I students indicated that the new Title I schools were using different student selection techniques than the old Title I schools. This could also have resulted in observed changes in student characteristics. Since several different sampling designs were used in the study, the actual comparisons made varied from site to site. These comparisons are detailed in Table C-9. The comparisons among old Title I schools are given in column 1 while the comparisons among old and new schools are described in column 2.

TABLE C-9

SITE SPECIFIC TESTS OF
STUDENT SELECTION POLICIES

DEMONSTRATION DESIGN	DIFFERENTIAL STUDENT SELECTION TESTS	
	OVER TIME	WITHIN YEAR 2
DIRECT ALLOCATION DISTRICTS	1. For TI/TI schools	1. Between TI/TI and and NTI/TI schools
ACHIEVEMENT ALLOCATION DISTRICTS	1. For TI/TI schools 2. Between TI/NTI and NTI/TI schools	1. Between TI/TI and NTI/TI schools
ALUM ROCK	1. For TI/TI concentrated schools	None
BERKELEY COUNTY	1. For TI/TI schools	None
BOSTON	1. For TI/TI non-Demonstration schools	1. Between TI/TI and NTI/TI Demonstra- schools 2. Between Demonstration and non-Demonstration TI schools
HOUSTON	1. For TI/TI Demonstration schools 2. For held harmless schools	1. Between Demonstration schools and held harmless schools
YONKERS	1. For TI/TI non-Demonstration schools 2. For TI/TI Demonstration schools	1. Between TI Demonstration schools 2. Between TI non-Demonstration schools 3. Between Demonstration and non-Demonstration TI schools

The second possible reason was a change in the school selection process. In most sites (Berkeley County is the exception) new Title I schools were added and/or old Title I schools lost their Title I status over time. The issue of school selection, however, rests most squarely on the direct allocation and pure reallocation districts, i.e., those which extend services to all schools or change the Title I status of schools over time. In the other sites where the Demonstration is set apart from other Title I and non-Title I schools, the issue of school selection is not as crucial (or manageable). Revised eligibility criteria on the national level would presumably apply to all schools, making the sites with separate Demonstration schools somewhat less policy relevant.

The impact of changing the school selection process was evaluated by comparing the composition of schools with respect to relevant characteristics across time and/or across types within Year 2, while ignoring student Title I status. This type of analysis is useful in answering questions like, "Do new Title I schools have fewer poor students than old Title I schools in Year 2?" Such analysis also gives an indication of the level of the characteristic by school type. No direct test of differences between schools was made other than a general interaction test which was intended to detect any change in any school type over time. Changes in specific school types of interest were examined, but without recourse to statistical tests. In cases where differential student selection was not found, it was assumed that the addition of new Title I schools was almost certainly the cause of change.

BY-SITE NARRATIVES

DIRECT ALLOCATION DISTRICTS

ADAMS COUNTY #12

There was an increase in the proportion of minority students among those served in Adams County #12 and decreases in the proportions of poor readers and free lunch students in Year 2. All these changes were non-significant. There is also some indication that proportions of poor students changed across school types over time (distributional change).

In original Title I schools the proportion of minority students was greater in Year 2 than in Year 1. It was also greater than the corresponding proportion in new Title I schools. Together, these differences resulted in a small increase in the percentage of such students among those served.

The small decrease in the proportion of low achievers among those served was primarily a function of differential student selection within and across years. In original Title I schools, this proportion was smaller in Year 2 than in Year 1 and it was also smaller than the corresponding proportion in new Title I schools. The latter also had a smaller proportion of such students overall than did the old Title I schools.

There were no differences in student selection with respect to poverty status, either within or across years. New Title I schools did have a smaller proportion of poor students overall than original Title I schools, however.

HARRISON COUNTY

The only notable Demonstration-related change in student characteristics for Harrison County took place in the proportion of poor students among those served, which showed an overall decrease of 7%. This change was the result of the

TABLE C-10

THE PROPORTION OF STUDENTS IN EACH
ANALYSIS CELL WITH SPECIFIED CHARACTERISTICS

ADAMS COUNTY #12

MINORITY STUDENTS

STUDENT TYPE	YEAR 1 SCHOOL TYPE 1	YEAR 1 SCHOOL TYPE 2		YEAR 2 SCHOOL TYPE 1	YEAR 2 SCHOOL TYPE 2	
TI	19.0 (42)	X	19.0	37.8 (45)	22.6 (164)	25.8
NTI	15.5 (309)	14.6 (1585)	14.7	16.5 (376)	14.6 (1670)	14.9
	16.0	14.6		18.8	15.3	

LOW ACHIEVERS

STUDENT TYPE	YEAR 1 SCHOOL TYPE 1	YEAR 1 SCHOOL TYPE 2		YEAR 2 SCHOOL TYPE 1	YEAR 2 SCHOOL TYPE 2	
TI	83.3 (42)	X	83.3	53.3 (45)	79.5 (166)	73.9
NTI	22.2 (311)	18.6 (1580)	19.2	26.1 (376)	17.1 (1687)	18.8
	29.5	18.6		29.0	22.7	

FREE LUNCH STUDENTS

STUDENT TYPE	YEAR 1 SCHOOL TYPE 1	YEAR 1 SCHOOL TYPE 2		YEAR 2 SCHOOL TYPE 1	YEAR 2 SCHOOL TYPE 2	
TI	23.8 (42)	X	23.8	28.6 (42)	19.2 (151)	21.2
NTI	21.3 (310)	12.1 (1583)	13.6	27.8 (371)	9.6 (1571)	13.1
	21.6	12.1		27.8	10.5	

TABLE C-11

THE PROPORTION OF STUDENTS IN EACH
ANALYSIS CELL WITH SPECIFIED CHARACTERISTICS

HARRISON COUNTY

YEAR 1

SCHOOL TYPE

MINORITY STUDENTS

STUDENT TYPE	1	2	
TI	6.6 (355)	X	5.6
NTI	4.4 (942)	1.7 (594)	3.3
	4.7	1.7	

LOW ACHIEVERS

STUDENT TYPE	1	2	
TI	67.0 (355)	X	67.0
NTI	10.2 (942)	17.4 (593)	13.0
	25.8	17.4	

FREE LUNCH STUDENTS

STUDENT TYPE	1	2	
TI	65.1 (355)	X	65.1
NTI	36.3 (942)	18.2 (594)	29.3
	44.2	18.2	

YEAR 2

SCHOOL TYPE

MINORITY STUDENTS

	1	2	
TI	3.9 (359)	2.5 (119)	3.6
NTI	3.0 (899)	1.0 (397)	2.4
	3.3	1.4	

LOW ACHIEVERS

	1	2	
TI	66.0 (359)	74.0 (119)	68.0
NTI	9.7 (899)	4.3 (397)	8.0
	25.8	20.3	

FREE LUNCH STUDENTS

	1	2	
TI	66.0 (359)	33.6 (119)	57.9
NTI	37.2 (900)	13.6 (397)	30.0
	45.4	18.2	

new Title I schools having fewer poor students than the original Title I schools, not differential student selection over time or between school types. While there was no overall increase in the proportion of poor readers among those served, this proportion was greater in new Title I schools compared with old Title I schools in Year 2.

MESA

There were decreases in the proportion of minority and poor students among those served and an increase in the proportion of low-achieving students in Mesa. All of these changes were Demonstration related.

The decrease in proportion of minority students was a result of the addition of new Title I schools, which had fewer minority students. No differential selection across schools or time was indicated. The change in proportion of poor readers was a result of both differential student selection in original Title I schools and, to a lesser extent, the addition of new Title I schools. The same is true for the decrease in the proportion of poor students. No systemic or distributional changes were indicated. The changes for low achievers and poor students were among the largest of any site in the Demonstration.

NEWPORT

There was a very small increase in the proportion of minority students among those served in Newport and a larger increase in the proportion of low achievers. The proportion of Title I students who were poor decreased in Year 2. We consider these results to be Demonstration related, even though there was a distributional change in achievement levels over time. (That is, original Title I schools showed a decrease in the overall proportion of poor readers, while new Title I schools showed an increase over time. While this change in school composition may explain part of the observed change in the characteristics of the Title I students, however, it does not fully account for such changes.)

TABLE C-12

THE PROPORTION OF STUDENTS IN EACH
ANALYSIS CELL WITH SPECIFIED CHARACTERISTICS

MESA

MINORITY STUDENTS

STUDENT TYPE	YEAR 1 SCHOOL TYPE 1	YEAR 1 SCHOOL TYPE 2		YEAR 2 SCHOOL TYPE 1	YEAR 2 SCHOOL TYPE 2	
TI	28.8 (480)	X	28.8	28.4 (285)	15.0 (133)	24.2
NTI	16.7 (1127)	11.2 (1245)	13.9	19.2 (1372)	9.0 (1289)	14.2
	20.3	11.2		20.8	9.6	

LOW ACHIEVERS

STUDENT TYPE	YEAR 1 SCHOOL TYPE 1	YEAR 1 SCHOOL TYPE 2		YEAR 2 SCHOOL TYPE 1	YEAR 2 SCHOOL TYPE 2	
TI	44.4 (484)	X	44.4	63.3 (286)	59.5 (131)	62.1
NTI	10.4 (1127)	14.8 (1241)	12.7	12.3 (1388)	9.6 (1288)	11.0
	20.6	14.8		21.0	14.2	

FREE LUNCH STUDENTS

STUDENT TYPE	YEAR 1 SCHOOL TYPE 1	YEAR 1 SCHOOL TYPE 2		YEAR 2 SCHOOL TYPE 1	YEAR 2 SCHOOL TYPE 2	
TI	44.5 (481)	X	44.5	36.3 (284)	21.8 (133)	31.7
NTI	20.1 (1127)	16.7 (1241)	18.3	26.1 (1392)	12.7 (1289)	19.7
	27.4	16.7		27.9	13.6	

TABLE C-13

THE PROPORTION OF STUDENTS IN EACH
ANALYSIS CELL WITH SPECIFIED CHARACTERISTICS

NEWPORT

MINORITY STUDENTS

STUDENT TYPE	YEAR 1 SCHOOL TYPE 1	YEAR 1 SCHOOL TYPE 2	YEAR 1	YEAR 2 SCHOOL TYPE 1	YEAR 2 SCHOOL TYPE 2	YEAR 2
TI	20.8 (53)	X	20.8	36.0 (25)	20.3 (74)	24.2
NTI	26.3 (114)	14.7 (483)	16.9	24.3 (111)	15.3 (385)	17.3
	24.6	14.7		26.5	16.1	

LOW ACHIEVERS

STUDENT TYPE	YEAR 1 SCHOOL TYPE 1	YEAR 1 SCHOOL TYPE 2	YEAR 1	YEAR 2 SCHOOL TYPE 1	YEAR 2 SCHOOL TYPE 2	YEAR 2
TI	52.8 (53)	X	52.8	64.0 (25)	66.2 (74)	65.7
NTI	18.4 (114)	19.9 (482)	19.6	14.2 (113)	17.6 (386)	16.8
	29.3	19.9	23.2	23.1	25.4	

FREE LUNCH STUDENTS

STUDENT TYPE	YEAR 1 SCHOOL TYPE 1	YEAR 1 SCHOOL TYPE 2	YEAR 1	YEAR 2 SCHOOL TYPE 1	YEAR 2 SCHOOL TYPE 2	YEAR 2
TI	77.4 (53)	X	77.4	64.0 (25)	60.8 (74)	61.6
NTI	55.3 (114)	40.0 (482)	43.0	55.8 (113)	37.6 (386)	41.7
	62.3	40.0		57.2	41.3	

The small change in the proportion of minority students among those served is a result of two opposing trends. Differential student selection in the original Title I schools resulted in an increase in the proportion of minority students among Title I students in these schools over time. On the other hand, the proportion of minority students among those served in the new Title I schools (with fewer minority students within them) was smaller. Together, these resulted in a relatively minor increase of 3%. Differential student selection in original Title I schools also seems to account for the increase in the proportion of low-achieving students in Year 2, although the distributional change makes this interpretation less reliable.

Both types of differential student selection, as well as school selection, are responsible for the large decrease in the proportion of poor students in Year 2. New Title I schools have a smaller proportion of poor students than original Title I schools and differential student selection is quite strong in original Title I schools as well.

RACINE

Although there were no important changes for Title I students over time for any of the characteristics, some of the other comparisons show important Demonstration-related results.

Differential selection of minority students took place in original Title I schools and between original and new Title schools, although the overall change in minority students served was small. Original Title I schools served 9% more minority students in Year 2 than in Year 1 and 14% more than new Title I schools in Year 2. All these differences were Demonstration related.

A smaller proportion of poor readers were among those served in original Title I schools in Year 2 than Year 1 and fewer than new Title I schools in Year 2. This decrease is due to differential student selection within these schools

TABLE C-14

THE PROPORTION OF STUDENTS IN EACH
ANALYSIS CELL WITH SPECIFIED CHARACTERISTICS

RACINE

MINORITY STUDENTS

STUDENT TYPE	YEAR 1 SCHOOL TYPE 1	YEAR 1 SCHOOL TYPE 2		YEAR 2 SCHOOL TYPE 1	YEAR 2 SCHOOL TYPE 2	
TI	42.9 (105)		42.9	50.0 (136)	38.9 (257)	42.7
NTI	23.4 (973)	18.8 (1852)	20.4	19.2 (1056)	19.2 (1698)	19.2
	25.3	18.8		22.7	21.8	

LOW ACHIEVERS

STUDENT TYPE	YEAR 1 SCHOOL TYPE 1	YEAR 1 SCHOOL TYPE 2		YEAR 2 SCHOOL TYPE 1	YEAR 2 SCHOOL TYPE 2	
TI	59.6 (104)		59.6	52.6 (137)	60.3 (252)	57.6
NTI	10.6 (990)	14.7 (1849)	13.3	7.3 (1055)	10.9 (1689)	9.5
	15.3	14.7		12.5	17.3	

FREE LUNCH STUDENTS

STUDENT TYPE	YEAR 1 SCHOOL TYPE 1	YEAR 1 SCHOOL TYPE 2		YEAR 2 SCHOOL TYPE 1	YEAR 2 SCHOOL TYPE 2	
TI	43.8 (105)		43.8	49.6 (137)	38.3 (253)	42.3
NTI	26.5 (990)	14.7 (1851)	18.8	21.0 (1052)	16.0 (1678)	17.9
	28.1	14.7		24.3	19.0	

over time and also to an overall decrease in poor readers in these schools (by about 3%), a distributional change. Added Title I schools had 14% more poor readers among those served than old Title I schools, and this difference is a function of differential student selection.

The decrease in the proportion of poor students among those served is a result of differential student selection in Year 2 and, to a larger degree, the addition of new Title I schools which had fewer poor students within them.

SANTA FE

A smaller proportion of minority and poor students and a higher proportion of low achievers were among those served in Santa Fe in Year 2. Only the changes in low achievers and poor students, however, seem to be Demonstration-related.

The increase in proportion of low achievers was due in part to differential student selection in Year 2 between new and old Title I schools. While the number of poor readers in the new Title I schools was lower than that in original Title I schools, a greater proportion of them were served. There was, in addition, a small increase in original Title I schools due to differential selection across time.

The decrease in proportion of poor students served was primarily due to the addition of new Title I schools which had a much smaller proportion of students within them compared to original Title I schools.

TABLE C-15

THE PROPORTION OF STUDENTS IN EACH
ANALYSIS CELL WITH SPECIFIED CHARACTERISTICS

SANTA FE

MINORITY STUDENTS

STUDENT TYPE	YEAR 1 SCHOOL TYPE 1	YEAR 1 SCHOOL TYPE 2		YEAR 2 SCHOOL TYPE 1	YEAR 2 SCHOOL TYPE 2	
TI	86.6 (306)	X	86.6	83.9 (310)	76.5 (68)	82.5
NTI	73.1 (804)	56.0 (591)	65.9	68.9 (743)	52.8 (536)	62.2
	76.8	56.0		73.3	55.5	

LOW ACHIEVERS

STUDENT TYPE	YEAR 1 SCHOOL TYPE 1	YEAR 1 SCHOOL TYPE 2		YEAR 2 SCHOOL TYPE 1	YEAR 2 SCHOOL TYPE 2	
TI	64.4 (306)	X	64.4	69.5 (308)	81.4 (70)	71.7
NTI	12.1 (803)	16.2 (591)	13.8	11.8 (744)	9.3 (537)	10.8
	26.5	16.2		28.7	17.6	

FREE LUNCH STUDENTS

STUDENT TYPE	YEAR 1 SCHOOL TYPE 1	YEAR 1 SCHOOL TYPE 2		YEAR 2 SCHOOL TYPE 1	YEAR 2 SCHOOL TYPE 2	
TI	86.3 (306)	X	86.3	80.6 (310)	47.8 (69)	74.7
NTI	54.9 (805)	30.9 (573)	44.9	52.0 (742)	24.4 (536)	40.5
	63.5	30.9		60.5	27.1	

ACHIEVEMENT ALLOCATION DISTRICTS

CHARLOTTE

The proportion of poor readers among those served by Title I decreased in Charlotte over time, but this change cannot be attributed to the Demonstration. However, there were moderate decreases in the proportions of minority and poor students among those served which do seem to be Demonstration related.

The changes for minority and poor students do not seem to be the result of differing student selection in Year 2. Rather, these changes seem derived from two sources. One is differential student selection over time in the original Title I schools. The proportions of such students among those served decreases in these school types for all the characteristics. Even more importantly, the changes are also the result of changes in student selection across school types over time. In Charlotte, a number of Title I schools lost their Title I status in Year 2, while others gained such status. The proportions of minority and of poor students served were lower in schools which were added in Year 2, compared with the proportions served in schools which were later dropped in Year 1. These decreases were not mirrored for non-Title I students suggesting the changes may be attributed to student selection rather than school selection.

WINSTON-SALEM

In Winston-Salem, there was a increase in the proportion of students with all three characteristics among those served in Year 2.

For minority students, the change appears to be Demonstration related. It is attributable primarily to differential student selection in original Title I schools rather than to differential student selection in Year 2 or to changes in schools.

TABLE C-16

THE PROPORTION OF STUDENTS IN EACH ANALYSIS CELL WITH SPECIFIED CHARACTERISTICS

CHARLOTTE

MINORITY STUDENTS

STUDENT TYPE	YEAR 1 SCHOOL TYPE 1	2	3	4		YEAR 2 SCHOOL TYPE 1	2	3	4	
TI	64.3 (767)	X	76.4 (259)	X	67.3	60.9 (1058)	57.7 (709)	X	X	59.6
NTI	31.0 (1670)	36.8 (2638)	21.0 (821)	28.6 (845)	31.8	31.6 (2244)	29.9 (1960)	31.5 (887)	27.3 (765)	30.4
	41.4	36.8	34.3	28.6		41.0	37.3	31.5	27.3	

LOW ACHIEVERS

STUDENT TYPE	1	2	3	4		1	2	3	4	
TI	84.7 (772)	X	79.5 (258)	X	83.4	80.6 (1060)	77.5 (710)	X	X	79.3
NTI	20.4 (1678)	31.1 (2618)	12.4 (824)	24.7 (842)	24.6	22.9 (2261)	17.7 (1958)	30.0 (880)	24.5 (763)	22.4
	40.7	31.1	28.4	24.7		41.3	33.6	30.0	24.5	

FREE LUNCH STUDENTS

STUDENT TYPE	1	2	3	4		1	2	3	4	
TI	72.1 (767)	X	74.3 (257)	X	72.7	66.0 (1053)	53.0 (709)	X	X	60.8
NTI	33.7 (1678)	32.6 (2640)	19.3 (822)	23.8 (845)	29.8	35.0 (2254)	24.6 (1956)	30.4 (885)	22.2 (765)	29.2
	45.7	32.6	32.4	23.8		44.9	32.2	30.4	22.2	

TABLE C-17

THE PROPORTION OF STUDENTS IN EACH ANALYSIS CELL WITH SPECIFIED CHARACTERISTICS

WINSTON-SALEM

MINORITY STUDENTS

YEAR 1

STUDENT TYPE	SCHOOL TYPE 1	2	3	4	
TI	52.9 (594)	X	63.8 (80)	X	54.2
NTI	27.8 (982)	39.4 (2227)	15.0 (320)	22.8 (1287)	31.0
	37.2	39.4	24.8	22.8	

YEAR 2

STUDENT TYPE	SCHOOL TYPE 1	2	3	4	
TI	60.1 (366)	62.7 (483)	X	X	61.6
NTI	30.5 (1152)	33.3 (1698)	25.0 (420)	25.3 (1355)	29.5
	37.6	39.8	25.0	25.3	

LOW ACHIEVERS

YEAR 1

STUDENT TYPE	SCHOOL TYPE 1	2	3	4	
TI	71.8 (595)	X	76.3 (80)	X	72.3
NTI	13.7 (982)	33.7 (2224)	6.6 (320)	21.9 (1283)	24.7
	35.6	33.7	20.5	21.9	

YEAR 2

STUDENT TYPE	SCHOOL TYPE 1	2	3	4	
TI	86.1 (367)	88.8 (483)	X	X	87.6
NTI	27.0 (1157)	25.4 (1700)	36.1 (421)	25.8 (1355)	26.9
	41.2	39.4	36.1	25.8	

FREE LUNCH STUDENTS

YEAR 1

STUDENT TYPE	SCHOOL TYPE 1	2	3	4	
TI	63.5 (594)	X	71.3 (80)	X	64.4
NTI	33.7 (979)	41.5 (2220)	11.9 (319)	17.7 (1287)	31.6
	44.9	41.5	23.8	17.7	

YEAR 2

STUDENT TYPE	SCHOOL TYPE 1	2	3	4	
TI	76.4 (365)	66.5 (483)	X	X	70.8
NTI	36.0 (1149)	32.5 (1696)	26.1 (421)	20.8 (1356)	29.4
	45.8	40.1	26.1	20.8	

The proportion of poor students among those served also increased in Year 2. Student selection in original Title I schools can account for this change. Original Title I schools show an increase in Year 2 while newly added Title I schools have a lower proportion of students who are poor than did schools which lost Title I status.

OTHER SITES

ALUM ROCK

Alum Rock presents interesting problems of interpretation for a number of reasons. First, the consolidated funding method used in Alum Rock makes Title I status more of a bureaucratic than an educational phenomenon. There are large changes in student characteristics between the two years of the Demonstration, but it is unclear whether these changes are bookkeeping conventions or the result of actual educational policies.

Secondly, the two different student targeting techniques used in Alum Rock (saturated and concentrated student selection) create other comparisons of interest.* These result in a different school-by-student type design for Year 2 and many large differences for certain contrasts (especially interactions between Title I and non-Title I students). Since the overall design changes so dramatically, the interpretation of many of these contrasts becomes difficult.

There is an overall decrease in the proportion of minority students among those served in Alum Rock for Year 2 which seems to be due to the added Title I schools. But this decrease also takes place for non-Title I students, which indicates that this change may be a systemic rather than a Demonstration-related change. However, the design for Year 2 in Alum Rock makes all statements about non-Title I students and their change rather problematic. The absolute number of non-Title I students in Alum Rock falls dramatically in Year 2 because, by definition, non-Title I students no longer exist in saturated schools, and there is also a large decrease in the number of non-Title I students in concentrated schools.

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*In saturated schools, all students are considered eligible for and served by Title I. In concentrated schools, students are considered eligible for and targeted for service on the basis of educational disadvantage.

TABLE C-18

THE PROPORTION OF STUDENTS IN EACH
ANALYSIS CELL WITH SPECIFIED CHARACTERISTICS

ALUM ROCK

YEAR 1

MINORITY STUDENTS

SCHOOL TYPE

STUDENT TYPE	9	0	1	2	
TI	83.1 (207)	X	89.0 (391)	X	87.0
NTI	78.9 (266)	64.1 (326)	84.8 (244)	76.7 (931)	75.8
	80.8	64.1	87.4	76.7	

LOW ACHIEVERS

SCHOOL TYPE

STUDENT TYPE	9	0	1	2	
TI	52.6 (209)	X	47.0 (389)	X	49.0
NTI	48.7 (267)	45.8 (325)	53.3 (240)	45.6 (930)	47.2
	50.4	45.8	49.4	45.6	

FREE LUNCH STUDENTS

SCHOOL TYPE

STUDENT TYPE	9	0	1	2	
TI	90.0 (9209)	X	89.1 (393)	X	89.4
NTI	87.3 (267)	65.8 (325)	86.8 (243)	71.0 (927)	74.7
	88.4	65.8	88.2	71.0	

YEAR 2

MINORITY STUDENTS

SCHOOL TYPE

STUDENT TYPE	9	0	1	2	
TI	77.3 (546)	76.2 (382)	86.5 (683)	73.0 (981)	77.9
NTI	67.2 (64)	72.5 (51)	X	X	69.6
	76.2	75.8	86.5	73.0	

LOW ACHIEVERS

SCHOOL TYPE

STUDENT TYPE	9	0	1	2	
TI	61.9 (544)	56.2 (381)	56.0 (661)	46.7 (976)	53.7
NTI	0.0 (64)	3.8 (52)	X	X	1.7
	55.4	49.9	56.0	46.7	

FREE LUNCH STUDENTS

SCHOOL TYPE

STUDENT TYPE	9	0	1	2	
TI	82.2 (546)	75.5 (384)	89.6 (682)	69.3 (975)	78.3
NTI	53.1 (64)	60.8 (51)	X	X	56.5
	79.2	73.8	89.6	69.3	

Indeed, even in the concentrated schools most of the students are served by Title I in Year 2.* The largest difference in proportion minority among those served is between original Title I schools which are either saturated or concentrated in Year 2. Title I schools which concentrate services in Year 2 have about 9% fewer minority students among those served than schools which saturated services. There are also distributional changes indicated for minority students, but the radically different design in Year 2 makes this difficult to interpret.

There is a five point increase in the percentage of low achievers among those served in Year 2. The percentage of non-Title I students who are low achieving falls to almost zero, so all interaction effects comparing Title I and non-Title I student changes are large. Saturated schools serve proportionally fewer low achievers than concentrated schools, which seems consistent with the aim of concentrated services.

Finally, there is a decrease of about 11% in poor students among those served which is largely due to the addition of new Title I schools (both saturated and concentrated). Differences between saturated and concentrated schools are about 7% with no consistent pattern. Original Title I schools which are concentrated in Year 2 have a smaller proportion of poor students among those served than their saturated counterparts, and newly added concentrated schools have a higher proportion than newly added saturated schools.

BERKELEY COUNTY

Because of the static nature of the design in this site (no added Title I schools), only two contrasts can be made, one to assess differential student selection in Title I schools over time and another to measure distributional changes of student characteristics across school types over time. For all characteristics no distributional changes were indicated.

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*It should be noted that Alum Rock has an extremely high percentage of educationally disadvantaged students in the district (estimated at 84% in 1975-76). Thus, the fact that even so-called concentrated schools have large proportions of Title I students is not necessarily surprising.

TABLE C-19

THE PROPORTION OF STUDENTS IN EACH
ANALYSIS CELL WITH SPECIFIED CHARACTERISTICS

BERKELEY COUNTY

MINORITY STUDENTS

STUDENT TYPE	YEAR 1 SCHOOL TYPE 1	YEAR 1 SCHOOL TYPE 4		YEAR 2 SCHOOL TYPE 1	YEAR 2 SCHOOL TYPE 4	
TI	11.2 (197)	X	11.2	7.8 (383)	X	7.8
NTI	6.2 (906)	1.2 (559)	4.3	5.2 (755)	2.0 (347)	4.2
	7.1	1.3		6.1	2.0	

LOW ACHIEVERS

STUDENT TYPE	YEAR 1 SCHOOL TYPE 1	YEAR 1 SCHOOL TYPE 4		YEAR 2 SCHOOL TYPE 1	YEAR 2 SCHOOL TYPE 4	
TI	79.2 (197)	X	79.2	66.8 (383)	X	66.8
NTI	29.1 (903)	30.6 (558)	29.7	23.0 (755)	32.0 (347)	25.9
	38.1	30.6		37.8	32.0	

FREE LUNCH STUDENTS

STUDENT TYPE	YEAR 1 SCHOOL TYPE 1	YEAR 1 SCHOOL TYPE 4		YEAR 2 SCHOOL TYPE 1	YEAR 2 SCHOOL TYPE 4	
TI	57.4 (197)	X	57.4	56.7 (383)	X	56.7
NTI	36.4 (906)	26.1 (559)	32.5	36.2 (755)	28.9 (346)	33.9
	40.2	26.1		43.1	29.0	

There was a small (and non-significant) decrease in minority students among those served in Year 2. The decrease in proportion of low achievers, while significant, did not seem to be Demonstration-related, as a similar change was indicated for non-Title I students as well. There was no change in the proportion of poor students in Berkeley County.

BOSTON

Overall changes in the characteristics of students served by Title I are small in Boston. However, there are a few interesting differences revealed by additional contrasts made between more specific school and/or student groups. For minority students two changes stand out. The new Title I schools which qualify under poverty criteria (and are not therefore part of the Demonstration) have about 5% more minority students among those served than the original non-Demonstration Title I schools. This difference does not reflect student selection, but rather the greater proportion of minority students in the new poverty-eligible Title I schools. The other important difference is between the new Title I Demonstration schools and the non-Title I schools. These non-Title I schools have 7% fewer minority students than the new Demonstration schools. The Demonstration has resulted in the selection of additional schools with greater proportions of minority students than the remaining schools.

Looking at low achievers also shows no important overall change. However, other interesting differences emerge from the data. Demonstration schools have about 10% more low achievers among those served than the other Title I schools in Boston, and this difference is Demonstration-related. Even the new poverty eligible Title I schools have a higher proportion of low achievers than the original non-Demonstration Title I schools. So although the proportion of low achievers among those served in Boston has not changed overall, more low achievers are being served due to the addition of new

TABLE C-20

THE PROPORTION OF STUDENTS IN EACH
ANALYSIS CELL WITH SPECIFIED CHARACTERISTICS

BOSTON

MINORITY STUDENTS

YEAR 1

SCHOOL TYPE

STUDENT TYPE	1	2	4	9	
TI	72.8 (782)	X	X	X	72.8
NTI	54.6 (1115)	65.6 (314)	48.6 (1130)	63.0 (384)	54.6
	62.1	65.6	48.6	63.0	

YEAR 2

SCHOOL TYPE

STUDENT TYPE	1	2	4	9	
TI	72.0 (797)	77.0 (161)	X	74.2 (147)	73.0
NTI	55.1 (969)	60.2 (256)	51.6 (992)	53.2 (481)	54.0
	62.7	66.7	51.6	58.1	

LOW ACHIEVERS

YEAR 1

SCHOOL TYPE

STUDENT TYPE	1	2	4	9	
TI	65.2 (785)	X	X	X	65.2
NTI	18.6 (1118)	33.3 (315)	25.4 (1132)	30.7 (384)	24.3
	37.8	33.3	25.4	30.7	

YEAR 2

SCHOOL TYPE

STUDENT TYPE	1	2	4	9	
TI	62.0 (798)	67.5 (163)	X	72.8 (147)	64.3
NTI	20.6 (969)	22.3 (256)	28.6 (973)	17.3 (480)	23.1
	39.3	39.9	28.6	30.3	

FREE LUNCH STUDENTS

YEAR 1

SCHOOL TYPE

STUDENT TYPE	1	2	4	9	
TI	91.0 (787)	X	X	X	91.0
NTI	81.6 (1118)	80.9 (314)	52.7 (1112)	67.7 (384)	68.7
	85.4	80.9	52.7	67.7	

YEAR 2

SCHOOL TYPE

STUDENT TYPE	1	2	4	9	
TI	93.2 (799)	90.8 (163)	X	87.2 (148)	92.1
NTI	82.0 (955)	75.0 (255)	56.9 (992)	68.3 (482)	69.6
	87.1	81.1	56.9	72.7	

Title I schools on the bases of both poverty and achievement criteria. Other changes in the proportion of low achievers among those served across schools and student type are small in Boston.

As with the other student characteristics in Boston, there is a small change (a 1% increase) between Years 1 and 2 in the percent of poor students among those served. As is consistent with the expected results, the Demonstration schools have about 6% fewer poor students among those served compared with other Title I schools in Boston.

Boston is an interesting example of the use of both poverty- and achievement-based criteria in the selection of Title I schools. Schools which qualify for Title I funds on the basis of poverty criteria (original and new non-Demonstration Title I schools) have larger proportions of minority, low achieving, and poor students than schools which do not. Schools which qualify on the basis of achievement criteria, i.e., Demonstration schools, have the next highest proportions of these characteristics. Together, this sequencing of school selection procedures results in greater proportions of low-achieving students than would have been served on the basis of poverty criteria alone.

HOUSTON

There were no overall changes in student characteristics for Houston, but a consistent relationship was found between the change in Demonstration and held-harmless schools for low achievers and poor students.

There was no change in the proportion of minority students among those served in Houston, but a dramatic increase in the proportion of non-Title I minority students. There was no change among students served in original Title I schools or in the held-harmless school types. In Year 2, Demonstration

TABLE C-21

THE PROPORTION OF STUDENTS IN EACH
ANALYSIS CELL WITH SPECIFIED CHARACTERISTICS

HOUSTON

MINORITY STUDENTS

YEAR 1

STUDENT TYPE	SCHOOL TYPE 1	2	4	9	0	
TI	99.0 (1426)	X	X	X	99.1 (222)	99.0
NTI	96.8 (1792)	88.0 (682)	53.8 (8865)	94.8 (1975)	90.6 (329)	68.0
	97.8	88.0	53.8	94.8	94.0	

YEAR 2

STUDENT TYPE	SCHOOL TYPE 1	2	4	9	0	
TI	98.7 (1673)	95.5 (199)	X	X	96.4 (250)	98.2
NTI	98.0 (2150)	91.2 (329)	56.6 (3600)	95.5 (1783)	88.0 (389)	78.6
	98.4	92.8	56.6	95.5	91.2	

LOW ACHIEVERS

YEAR 1

STUDENT TYPE	SCHOOL TYPE 1	2	4	9	0	
TI	64.3 (1421)	X	X	X	81.5 (222)	66.6
NTI	39.7 (1787)	47.9 (681)	28.8 (8837)	44.0 (1976)	44.1 (331)	33.8
	50.6	47.9	28.8	44.0	59.1	

YEAR 2

STUDENT TYPE	SCHOOL TYPE 1	2	4	9	0	
TI	66.2 (1691)	70.4 (199)	X	X	67.5 (249)	66.7
NTI	36.8 (2145)	30.1 (329)	29.6 (3599)	44.2 (1736)	37.4 (388)	35.0
	49.8	45.3	29.6	44.2	49.1	

FREE LUNCH STUDENTS

YEAR 1

STUDENT TYPES	SCHOOL TYPE 1	2	4	9	0	
TI	83.5 (1420)	X	X	X	82.1 (224)	83.3
NTI	73.1 (1790)	65.1 (681)	30.0 (8861)	60.3 (1964)	80.5 (329)	43.0
	77.7	65.1	30.0	60.3	81.2	

YEAR 2

STUDENT TYPES	SCHOOL TYPE 1	2	4	9	0	
TI	84.7 (1690)	79.4 (199)	X	X	91.2 (250)	85.0
NTI	79.2 (2138)	61.3 (328)	37.4 (3601)	63.1 (1731)	73.8 (390)	56.4
	81.6	68.1	37.4	63.1	80.6	

schools served only 2% more minority students than the held-harmless schools, which had slightly fewer minority students overall. Finally, the skipped schools were quite similar to new Title I schools.

For low achievers, the more specific contrasts showed an interesting relationship between Demonstration and held-harmless school types. Although there was no difference between Demonstration and held-harmless schools in Year 2, this was due to the 14% drop in low achievers among Title I students served in held-harmless schools. This change in the held-harmless schools seems to be the result of a decrease in the overall percentage of low achievers in these schools. As with minority students, the skipped schools seem quite similar to new (Demonstration) Title I schools.

The small relative increase in poor students among those served is similarly the result of two opposing trends. Demonstration schools have the same proportion of poor students as was found in Title I schools in Year 1. However, the proportion of poor students among those served in held-harmless schools increases by 9% in Year 2 due to differential student selection. This results in 7% more poor students among those served in Year 2 in held-harmless schools than in Demonstration schools.

Held-harmless schools are not unaffected by the Demonstration. While in Demonstration schools the proportion of low achievers increases and the proportion of poor students decreases (or stays the same), these trends are reversed in held-harmless schools, resulting in no overall change in Houston.

YONKERS

There are large relative decreases in minority and poor students among those served and an increase in low achievers among those served in Yonkers in Year 2. However, the 10% increase in low achieving is also reflected in the change for non-Title I students which suggests that the overall change may not be the result of the Demonstration. Because of the

TABLE C-22

THE PROPORTION OF STUDENTS IN EACH
ANALYSIS CELL WITH SPECIFIED CHARACTERISTICS

YONKERS

MINORITY STUDENTS

YEAR 1

STUDENT TYPE	SCHOOL TYPE 1	2	4	9	0	
TI	91.2 (373)	X	X	84.5 (168)	X	89.1
NTI	78.8 (99)	32.7 (107)	7.2 (1228)	44.9 (78)	23.8 (323)	17.1
	88.6	32.7	7.2	72.0	23.8	

YEAR 2

STUDENT TYPE	SCHOOL TYPE 1	2	4	9	0	
TI	94.1 (357)	61.3 (62)	X	68.4 (228)	42.1 (290)	69.6
NTI	81.8 (242)	55.2 (67)	11.5 (1960)	92.3 (52)	36.0 (114)	22.6
	89.1	58.1	11.5	72.9	40.3	

LOW ACHIEVERS

YEAR 1

STUDENT TYPE	SCHOOL TYPE 1	2	4	9	0	
TI	56.8 (354)	X	X	71.2 (163)	X	61.3
NTI	22.0 (91)	34.7 (95)	9.8 (1204)	38.6 (70)	24.2 (310)	15.4
	49.7	34.7	9.8	61.4	24.2	

YEAR 2

STUDENT TYPE	SCHOOL TYPE 1	2	4	9	0	
TI	87.3 (306)	79.7 (59)	X	76.9 (186)	49.8 (283)	71.7
NTI	47.7 (222)	43.9 (66)	24.9 (1915)	40.4 (52)	43.3 (120)	28.8
	70.6	60.8	24.9	68.9	47.9	

FREE LUNCH STUDENTS

YEAR 1

STUDENT TYPES	SCHOOL TYPE 1	2	4	9	0	
TI	83.4 (373)	X	X	87.5 (168)	X	84.7
NTI	48.5 (99)	54.2 (107)	7.1 (1227)	50.6 (79)	52.3 (323)	21.9
	76.1	54.2	7.1	75.7	52.3	

YEAR 2

STUDENT TYPES	SCHOOL TYPE 1	2	4	9	0	
TI	70.8 (339)	67.7 (62)	X	84.2 (228)	64.7 (300)	71.9
NTI	61.0 (228)	64.2 (67)	17.2 (1974)	100.0 (52)	68.0 (122)	26.9
	66.8	65.9	17.2	87.1	65.6	

great numbers of comparisons of interest, the following discussion will be more extensive than previous ones. It is important to note that in Yonkers there were two types of Title I schools. While some schools selected students by achievement level other attempted to expand services to almost all students. At the risk of some confusion the following discussion calls these "non-Demonstration" and "Demonstration" schools, respectively, even though all were Title I schools.

Twenty percent fewer minority students were among those served overall in Year 2 and this change seems to be related to the Demonstration. The specially selected Demonstration schools have about 36% fewer minority students served than the non-Demonstration Title I schools. In addition, in Year 2 both new Title I school types have more minority students than the schools which have never received Title I benefits.

Looking at just Demonstration schools in Yonkers, there appears to be differential student selection in original Demonstration Title I schools over time and between Title I/Title I and non-Title I/Title I Demonstration schools within Year 2. These non-Title I/Title I Demonstration schools have fewer minority students than original Title I Demonstration schools within Year 2.

Although the overall proportion of low achievers among those served increased over time, this change is also apparent for non-Title I students, indicating the possibility of systemic changes in achievement levels between Years 1 and 2 of the Demonstration. However, Demonstration schools have 25% fewer low achievers among Title I students than the non-Demonstration Title I schools in Year 2. Thus, while the overall percentage of low achievers has increased, this increase is largely due to the increases in non-Demonstration schools being larger than those in the Demonstration schools. We also note that the percentage of low achievers served in original Title I schools (regardless of Demonstration status) has also increased (by 22%), but this increase has also occurred for

non-Title I students in these schools, again suggesting systemic rather than Demonstration change.

Looking at the Demonstration schools reveals that differential student selection is taking place in original and new Demonstration schools. New Demonstration schools have a relatively smaller proportion of low-achieving students than original Title I Demonstration schools. These new Title I Demonstration schools have the second lowest percentage of low achievers of any school type, and probably serve students who would normally not be served under current Title I regulations. Only schools which never receive Title I funds have a lower proportion of low achievers.

There is a decrease of 13% in poor students among those served. This change seems to be Demonstration-related and is due to a decrease in the proportion of free lunch students among those served in old Title I schools (both Demonstration and non-Demonstration). All new Title I schools have lower percentages of poor students served than original Title I schools.

The major difference in the characteristics of Demonstration and non-Demonstration schools is found between those schools which were Title I in Year 1. Demonstration schools have a larger proportion of poor students than non-Demonstration schools. In contrast, there are virtually no differences in proportion poor among those served or proportion poor overall between newly added non-Demonstration and Demonstration schools.

Looking at Demonstrations schools only, one finds that new Title I schools have a smaller proportion of poor students among those served than original Title I schools due largely to differential student selection. There also appears to be differential student selection in original Title I Demonstration schools over time. Original Title I Demonstration schools have more poor students overall than

new Title I Demonstration schools. As with the other characteristics, schools which will never receive Title I funds have few poor students. There are also large distributional changes in proportions of poor students across school types between Years 1 and 2.

APPENDIX D

CHANGES IN SERVICES

Appendix D contains materials referenced from Chapter 4. These include:

1. A copy of the Classroom Activities Log (CAL).

2. Table D-1: Definition of Instructional Experience Variables.

3. Table D-2: CAL Sample Sizes by District.

4. A study of the reliability of the CAL, including Tables D-3 through D-8.

5. Analyses supporting the decision to exclude Title I children without compensatory language arts from the analytic sample, including Tables D-9 through D-12.

6. Tables D-13 through D-25: Minutes per day devoted to various types of instruction delivered to students in each district.

7. Tables D-26 through D-38: Percentage of time devoted to various types of language arts instruction delivered to students in each district.

8. Tables D-39 through D-44: Miscellaneous tables supporting Chapter 4 text.

9. Site-by-site interpretations of data presented in Tables D-13 through D-38.

CLASSROOM ACTIVITIES LOG
(CAL)

194

PART B

		1:00	2:00	3:00	4:00
CONTENT AREA	1. Language Arts (including reading, writing, grammar, etc.)	○○○○○○	○○○○○○	○○○○○○	○○○
	2. English as a Second Language (ESL)	○○○○○○	○○○○○○	○○○○○○	○○○
	3. Mathematics	○○○○○○	○○○○○○	○○○○○○	○○○
	4. Social Studies	○○○○○○	○○○○○○	○○○○○○	○○○
	5. Science	○○○○○○	○○○○○○	○○○○○○	○○○
	6. Fine & Applied Arts, Home Economics, Shop, Foreign Language	○○○○○○	○○○○○○	○○○○○○	○○○
	7. Physical Education, Health, Safety	○○○○○○	○○○○○○	○○○○○○	○○○
	8. Career Education	○○○○○○	○○○○○○	○○○○○○	○○○
	9. Multicultural Enrichment	○○○○○○	○○○○○○	○○○○○○	○○○
	10. Special Services (If marked, code Section II)	○○○○○○	○○○○○○	○○○○○○	○○○
	11. Recess, Lunch, Unoccupied	○○○○○○	○○○○○○	○○○○○○	○○○
	12. Classroom Management	○○○○○○	○○○○○○	○○○○○○	○○○
	13. Other (Specify) _____	○○○○○○	○○○○○○	○○○○○○	○○○
COMPENSATORY INSTRUCTION AND SERVICES (If marked, code Section II)		○○○○○○	○○○○○○	○○○○○○	○○○
BILINGUAL INSTRUCTION		○○○○○○	○○○○○○	○○○○○○	○○○
GROUP SIZE	1. Just This Student	○○○○○○	○○○○○○	○○○○○○	○○○
	2. Small Group (2–5)	○○○○○○	○○○○○○	○○○○○○	○○○
	3. Medium sized Group (6–10)	○○○○○○	○○○○○○	○○○○○○	○○○
	4. More Than 10 Students But Less Than 20 Students	○○○○○○	○○○○○○	○○○○○○	○○○
	5. 20 or More Students	○○○○○○	○○○○○○	○○○○○○	○○○
ADULT INVOLVED DIRECTLY IN TEACHING STUDENTS	1. Homeroom Teacher	○○○○○○	○○○○○○	○○○○○○	○○○
	2. Another Classroom Teacher	○○○○○○	○○○○○○	○○○○○○	○○○
	3. Instructional Specialist	○○○○○○	○○○○○○	○○○○○○	○○○
	4. Student Teacher	○○○○○○	○○○○○○	○○○○○○	○○○
	5. Aide, Assistant, or Adult Tutor (Paid)	○○○○○○	○○○○○○	○○○○○○	○○○
	6. Parent/Other Adult (Volunteer)	○○○○○○	○○○○○○	○○○○○○	○○○
	7. Other Adult (Specify) _____	○○○○○○	○○○○○○	○○○○○○	○○○
	8. Older Student/Peer Tutor	○○○○○○	○○○○○○	○○○○○○	○○○
	9. No Adult Involved Directly (Student Working Independently Under Adult Supervision)	○○○○○○	○○○○○○	○○○○○○	○○○

175

Form 1139

195

FOR USE BY ABT ASSOCIATES INC. PERSONNEL ONLY
FORM NO. 50

FORM STATUS
1 2
○ ○

SCHOOL TYPE
1 2 3 4 5 6 7 8 9 0
○○○○○○○○○○

TITLE I STATUS
1 2
○ ○

WAVE
1 2
○ ○

VALIDATION FORM
Yes No
○ ○

RESPONDENT
DRC Teacher
○ ○

MONTH DAY

FOR INTRAN USE ONLY

OMB No. 51-R1188
Approval expires Aug. 1978

CLASSROOM ACTIVITIES LOG

If the name of the student being observed is different from that listed above, please enter the correct name here.

Student Name _____

DIRECTIONS: Your response will be read by an optical mark reader. Your careful observance of these few simple rules will be most appreciated.

- Use only a black lead pencil (no. 2½ or less).
- Make heavy black marks that fill the circle.
- Erase cleanly any answer you wish to change.
- Where write-in responses are necessary, please confine your writing to the limits of the area provided.

1. Date of observation

Month ☐☐ Day ☐☐ 19 ☐☐

2. Day of the week (Mark one circle)

○ Monday ○ Tuesday ○ Wednesday ○ Thursday ○ Friday

Abt Associates Inc.
55 Wheeler Street
Cambridge, Ma. 02138

196

SECTION I

PART A

SECTION II COMPENSATORY INSTRUCTION / SPECIAL SERVICES REPORT FORM

DIRECTIONS

If you marked Special Services (Content Area 10) and/or Compensatory Instruction and Services in Section I of the Classroom Activities Log, please complete Section II. (Mark circles on the line associated with the block of time when the instruction and/or service was received.) If no Compensatory Instruction or Special Service was provided, turn to Section III below.

Time of Service		Type of Service										Reason for Service						Regular Instruction Child Would Have Received Had He/She Not Received Compensatory Instruction or Special Services at This Time					
Beginning of Day	End of Day	Compensatory Instruction	Combination of Compensatory Instruction and Special Services	Speech or Hearing	Vision Services	Special Classes (Mentally Retarded, Emotionally Disturbed, Learning Disabled, Physically Handicapped)	Other Specialized Services (Adaptive Physical Education, Homebound, Resource Room, Work Experience, Etc.)	Resource Teacher Services	Other Supportive Services (Psychological, Counseling, Social Work, Etc.)	Other Services (Specify)	None	Lack of Space	Scheduling Conflict	Parent Refusal	Student Refusal	Other (Specify)	None	Lack of Space	Scheduling Conflict	Parent Refusal	Student Refusal	Other (Specify)

SECTION III UNUSUAL OCCURRENCE REPORT FORM

DIRECTIONS

Does this day represent a marked departure from this student's typical school day? ○ Yes ○ No

If it does represent a marked departure, complete Section III below.

Type of Unusual Occurrence	Length of Unusual Occurrence				Regular Instruction Child Missed Due to Unusual Occurrence					
	1 hour or less	More than 1 hour but less than 2 hours	2 to 3 hours	More than 3 hours	None	Lack of Space	Scheduling Conflict	Parent Refusal	Student Refusal	Other
○ District or school-wide testing	○	○	○	○	○	○	○	○	○	○
○ Special activities such as parties, assemblies, etc.	○	○	○	○	○	○	○	○	○	○
○ Change in length of school day	○	○	○	○	○	○	○	○	○	○
○ Other (Specify below)	○	○	○	○	○	○	○	○	○	○
_____										
_____										

		7:00	8:00	9:00	10:00	11:00	12:00
		1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
CONTENT AREA	1. Language Arts (including reading, writing, grammar, etc.)	○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○
	2. English as a Second Language (ESL)	○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○
	3. Mathematics	○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○
	4. Social Studies	○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○
	5. Science	○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○
	6. Fine & Applied Arts; Home Economics; Shop; Foreign Language	○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○
	7. Physical Education, Health, Safety	○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○
	8. Career Education	○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○
	9. Multi-cultural Enrichment	○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○
	10. Special Services (If marked, code Section II)	○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○
	11. Recess, Lunch, Unoccupied	○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○
	12. Classroom Management	○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○
	13. Other (Specify) _____	○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○
COMPENSATORY INSTRUCTION AND SERVICES (If marked, code Section II)		○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○
BILINGUAL INSTRUCTION		○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○
GROUP SIZE	1. Just This Student	○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○
	2. Small Group (2–5)	○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○
	3. Medium-sized Group (6–10)	○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○
	4. More Than 10 Students But Less Than 20 Students	○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○
	5. 20 or More Students	○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○
ADULT INVOLVED DIRECTLY IN TEACHING STUDENTS	1. Homeroom Teacher	○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○
	2. Another Classroom Teacher	○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○
	3. Instructional Specialist	○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○
	4. Student Teacher	○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○
	5. Aide, Assistant, or Adult Tutor (Paid)	○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○
	6. Parent/Other Adult (Volunteer)	○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○
	7. Other Adult (Specify) _____	○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○
	8. Older Student/Peer Tutor	○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○
	9. No Adult Involved Directly (Student Working Independently Under Adult Supervision)	○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○

DEFINITION OF INSTRUCTIONAL EXPERIENCE VARIABLES

TABLE D-1

DEFINITION OF INSTRUCTIONAL EXPERIENCE VARIABLES

INSTRUCTIONAL EXPERIENCE	DEFINITION
Regular Language Arts	Non-compensatory language arts, English as a second language.
Compensatory Language Arts	Compensatory language arts, English as a second language.
Regular Math	Non-compensatory mathematics.
Compensatory Math	Compensatory mathematics.
Other Academic	Science and social studies.
Non-academic	Fine and applied arts, physical education, career education, cultural enrichment.
Special Services	Guidance, counseling, social work, etc.
Other	Recess, lunch, classroom management, other.
Regular Language x Individual	Individualized regular language instruction.
Regular Language x Small	Small group regular language instruction.
Regular Language x Medium	Medium group regular language instruction.
Regular Language x Large	Large group regular language instruction.
Regular Language x Professional	Regular language taught by a professional.
Regular Language x Instruc. Spec.	Regular language taught by an instructional specialist.
Regular Lang. x Paraprofessional	Regular language taught by a paraprofessional.
Regular Lang. x No Teacher	Regular language without direct supervision.
Comp. Lang. x Individual	Individualized compensatory language instruction.

(continues)

TABLE D-1

DEFINITION OF INSTRUCTIONAL EXPERIENCE VARIABLES
(concluded)

INSTRUCTIONAL EXPERIENCE	DEFINITION
Comp. Lang. x Small	Small group compensatory language instruction.
Comp. Lang. x Medium	Medium group compensatory language instruction.
Comp. Lang. x Large	Large group compensatory language instruction.
Comp. Lang. x Professional	Compensatory language taught by a professional.
Comp. Lang. x Instruc. Spec.	Compensatory language taught by an instructional specialist.
Comp. Lang. x Paraprofessional	Compensatory language taught by a paraprofessional.
Comp. Lang. x No Teacher	Compensatory language without direct supervision.

TABLE D-2

UNWEIGHTED AND WEIGHTED* SAMPLE SIZES FOR THE CAL BY DISTRICT, TITLE I STATUS, AND SCHOOL STATUS: 1975-76 and 1976-77

DISTRICT	TITLE I STATUS	YEAR OF STUDY	COMMON SCHOOL TYPES				DISTRICT SPECIFIC SCHOOL TYPES	
			1	2	3	4	9	0
ADAMS COUNTY #12	Title I	1975-76	8 (42)					
		1976-77	6 (45)	24 (167)				
	Non-Title I	1975-76	14 (467)	90 (1,430)				
		1976-77	23 (376)	91 (1,687)				
ALUM ROCK	Title I	1975-76	7 (393)				7 (209)	
		1976-77	5 (685)	6 (984)			4 (556)	4 (386)
	Non-Title I	1975-76	12 (244)	50 (932)			16 (267)	14 (326)
		1976-77					11 (64)	10 (92)
BERKELEY COUNTY	Title I	1975-76	9 (197)					
		1976-77	19 (383)					
	Non-Title I	1975-76	45 (906)			29 (559)		
		1976-77	51 (755)			28 (347)		
BOSTON	Title I	1975-76	46 (787)					
		1976-77					11 (148)	
	Non-Title I	1975-76	69 (1,121)	30 (315)		104 (1,133)	30 (384)	
		1976-77					22 (483)	
CHARLOTTE	Title I	1975-76	60 (772)		35 (259)			
		1976-77	73 (1,062)	50 (711)				
	Non-Title I	1975-76	88 (1,680)	185 (2,640)	39 (824)	62 (846)		
		1976-77	146 (2,266)	100 (1,960)	71 (887)	58 (767)		
HARRISON COUNTY	Title I	1975-76	34 (355)					
		1976-77	24 (359)	5 (119)				
	Non-Title I	1975-76	45 (942)	41 (594)				
		1976-77	53 (900)	20 (397)				
HOUSTON	Title I	1975-76	46 (1,426)					8 (224)
		1976-77	88 (1,694)	12 (190)				9 (250)
	Non-Title I	1975-76	87 (1,793)	34 (287)		505 (9,792)	113 (1,927)	15 (310)
		1976-77	141 (2,153)	19 (80)		245 (4,748)	107 (1,739)	21 (390)
MESA	Title I	1975-76	26 (485)					
		1976-77	31 (287)	17 (133)				
	Non-Title I	1975-76	54 (1,132)	70 (1,246)				
		1976-77	70 (1,398)	59 (1,291)				
NEWPORT	Title I	1975-76	2 (53)					
		1976-77	3 (25)	16 (74)				
	Non-Title I	1975-76	4 (114)	37 (483)				
		1976-77	5 (113)	20 (386)				
RACINE	Title I	1975-76	28 (92)					
		1976-77	28 (145)	50 (324)				
	Non-Title I	1975-76	51 (1,102)	109 (1,741)				
		1976-77	45 (1,022)	81 (1,715)				
SANTA FE	Title I	1975-76	24 (306)					
		1976-77	26 (310)	16 (70)				
	Non-Title I	1975-76	46 (805)	48 (591)				
		1976-77	49 (744)	27 (538)				
WINSTON-SALEM	Title I	1975-76	42 (597)		10 (80)			
		1976-77	52 (367)	58 (484)				
	Non-Title I	1975-76	48 (983)	137 (2,227)	10 (320)	77 (1,287)		
		1976-77	61 (1,159)	93 (1,700)	34 (421)	104 (1,356)		
YONKERS	Title I	1975-76	4 (373)				2 (158)	
		1976-77	6 (360)	2 (62)			13 (228)	
	Non-Title I	1975-76	8 (99)	6 (109)		73 (1,230)	5 (79)	22 (323)
		1976-77	16 (246)	4 (67)			3 (52)	6 (122)

KEY TO SCHOOL TYPES

School types are assigned contingent upon the status of the school during the first two years of the Demonstration. With the exception of four sites the common school types are:

SCHOOL TYPE	SCHOOL STATUS 1975-76	SCHOOL STATUS 1976-77
1	TI	TI
2	NTI	TI
3	TI	NTI
4	NTI	NTI

For the other sites with additional or non-comparable types (Alum Rock) the assignments are:

DISTRICT	SCHOOL TYPE	SCHOOL STATUS 1975-76	SCHOOL STATUS 1976-77
Alum Rock	1	TI	TI - saturated
	2	NTI	TI - saturated
	9	TI	TI - concentrated
	0	NTI	TI - concentrated
Boston	9	NTI	TI - Demonstration school
Houston	9	NTI	NTI- skipped in allocation
	0	TI	TI - held harmless
Yonkers	9	TI	TI - Demonstration school
	0	NTI	TI - Demonstration school

*Sample sizes for Title I students are based on restricted samples. (See pp. 199-205.)

RELIABILITY OF THE CLASSROOM ACTIVITIES LOG (CAL)

Reliability of the CAL

The Classroom Activities Log (CAL) is the primary instrument for describing the experiences of the child in the classroom. Its accuracy, therefore, has important implications for the results of the Demonstration study. This section of the report describes analyses we have performed to assess the accuracy and utility of teachers' responses to the instrument.

In completing the CAL form the teachers are required to provide a description of the child's activities for each ten minute block of the school day. The description includes a report of the type of activity, the size of the group, and the kind of adult involved. The type of activity is further divided into content of instruction, whether a compensatory activity is taking place, and whether the instruction is bilingual. The magnitude of the teachers' task is illustrated by Figure D-1. This is the activity description section for the first part of the day. Each column represents a ten-minute interval. In each column the teacher must darken one circle in each of the content, group size, and adult involved dimensions. The compensatory services and bilingual instruction dimensions are only darkened if they apply.

While it might be expected that the teacher should know best what the student does or experiences in the classroom, this does not insure the accuracy of the responses to the CAL. As can be seen from the description of the instrument, the teacher is required to continually monitor an individual child throughout the school day. With 20 or 30 children to work with and regular activities to take care of, the teacher obviously has little time for this continuous monitoring. It is probable that the form is filled out between classes or during other breaks. The responses are thus likely to be based substantially on recall. Competing job pressures as well as a lack of interest in or commitment to the project could affect the accuracy and completeness of this recall.

FIGURE D-1

PART A.

		8:00					9:00					10:00					11:00					12:00				
		:01–:10	:11–:20	:21–:30	:31–:40	:41–:50	:51–:00	:01–:10	:11–:20	:21–:30	:31–:40	:41–:50	:51–:00	:01–:10	:11–:20	:21–:30	:31–:40	:41–:50	:51–:00	:01–:10	:11–:20	:21–:30	:31–:40	:41–:50	:51–:00	:01–:10	:11–:20	:21–:30	:31–:40	:41–:50	:51–:00
CONTENT AREA	1. Language Arts	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	2. English as a Second Language	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	3. Mathematics	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	4. Social Studies	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	5. Science	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	6. Fine & Applied Arts; Home Economics; Shop; Foreign Language	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	7. Physicl Education, Health, Safety	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	8. Career Education	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	9. Cultural Enrichment	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	10. Special Services	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	11. Recess, Lunch, Unoccupied	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	12. Classroom Management	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	13. Other	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Compensatory Instruction and Services		O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Bilingual Instruction		O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
GROUP SIZE	1. Just This Student	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	2. Small Group (2–5)	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	3. Medium-sized Group (6–10)	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	4. More Than 10 Students But Less Than 20 Students	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	5. 20 or More Students	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
ADULT INVOLVED DIRECTLY IN TEACHING STUDENTS	1. Homeroom Teacher	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	2. Another Classroom Teacher	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	3. Instructional Specialist	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	4. Student Teacher	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	5. Paid Aide or Assistant	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	6. Parent/Adult Volunteer	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	7. Other Adult	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	8. Older Student	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	9. No Adult Involved Directly (Student Working Individually Under Adult Supervision)	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O

Methods

To check on the accuracy of the teachers' reports, a small sample of children* was selected for independent observation. Observers followed the child throughout the day and did not have to depend on recall. On the other hand, they knew less about the child's daily activities and could not always determine the appropriate description in ambiguous situations. A comparison of the two sets of responses provides a way to determine the amount and kinds of error affecting the observations.

The CAL reliability study is based on measures of the amount of correspondence between the observations from the teacher and from the outside observer. In addition, a more specific examination of typical kinds of mismatches is undertaken.

This approach allows for a determination of the amount and kinds of error arising from observations of pupils. As was noted above, however, the inaccuracies could be due to the observer as well as the teacher. The determination of the sources of error cannot be done analytically insofar as any error pattern could be generated by several different kinds of observer or teacher behavior. Discussion of these sources of error are, therefore, based mainly on knowledge about how people, especially teachers and observers, react to this type of instrument.

Among the many potential hypotheses about observational error, there is one type that will not be discussed. This is the class of biases that relate to the nature of the validation study itself. In any study of this kind, where two people are "checking" on each other, it is possible that the teachers and observers make extra efforts to give desirable results. Thus, teachers might be more attentive to the task

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*A total of 124 children, or approximately eight from the then sixteen districts, were used in the study. Observers were trained by District Research Coordinators employed by Abt Associates in each of the districts.

under validation than under normal conditions. As a result there is the possibility that the data reported below represent best rather than normal efforts, making the estimates of reliability biased toward the high side. Since this issue will not be discussed further, the possibility of upward bias must always be considered when examining the analytic findings.

Analytic Techniques

Two measures of correspondence were used for assessing the reliability of the five dimensions. Both are based on the total number of ten minute blocks containing valid information. This gives a measure of the length of the school day and is determined by counting the number of content area blocks in which either observer provides some information. This count is also used as the base for the compensatory instruction, bilingual instruction, group size, and adult involved dimensions of the form.

The first measure is the ratio of the number of matches to the total number of blocks used. It is the most stringent measure used in this study since an exact match between the teacher and observer responses is required before each observation is counted as correct.

The second measure is an adjusted measure which allows for slight differences in the times that the teacher and observer make their observations. The type of situation taken into account by the measure is illustrated in the following table.

	TIME BLOCK					
	1	2	3	4	5	6
TEACHER	1	1	1	3	3	3
OBSERVER	1	1	3	3	3	3

In time block 3 the activity changes. The teacher elected to code this activity "1" since the activity continued into this time block. The observer, however, noted the change somewhere in the middle of the ten minute block and elected to code the new activity "3". As in this example, such mismatches occur when activities change within blocks and are somewhat arbitrarily determined by the teachers' and observers' perceptions of how much of the ten minute block was actually devoted to each activity. The same pattern can also arise from slight differences in the clocks used by the two observers. Such errors should be discounted since the error reflects a minor variation in time judgment rather than a misperception of the activity.

In order to account for these "shift" errors, the mismatch was discounted if either observation seemed to be a continuation of a previous activity. Specifically, a cross-over indicator was computed for each non-matching block. This is given as:

$$CERR = (T_n - O_{n-1})\ (O_n - T_{n-1})$$

where: T_n (O_n) indicates a teacher (observer) observation at time n.

In the example given above this becomes:

$$\begin{aligned} CERR &= (T_3 - O_2)\ (O_3 - T_2) \\ &= (1 - 1)\ (3 - 1) \\ &= 0 \end{aligned}$$

The indicator is 0 when a shift error has occurred. The number of times CERR = 0 is counted and added to the number of "true" matches to give a corrected count of matches. The ratio of this corrected count of matches to the total number of valid blocks gives the adjusted reliability estimate. This adjustment occurs in a number of situations that differ from that of the table above. Some of the major types are given in Table D-3.

Pattern I is included to show that perfect match results in no corrections, since CERR is not computed unless there

is a mismatch. In pattern II the observation at point 5 is in question. Using the shift correction gives the teacher and/or observer the benefit of the doubt and counts this mismatch as a timing problem rather than an error of perception. Pattern III demonstrates that brief activities are effectively picked

TABLE D-3

		TIME								MATCHES	SHIFT CORRECTIONS
		1	2	3	4	5	6	7	8		
I	Teacher	1	1	1	1	1	2	2	2	8	0
	Observer	1	1	1	1	1	2	2	2		
II	Teacher	1	1	1	1	2	2	2	2	4	1
	Observer	1	1	1	1	1	3	3	3		
III	Teacher	1	1	1	1	2	1	1	1	6	2
	Observer	1	1	1	1	1	2	1	1		
IV	Teacher	1	1	2	1	1	1	1	1	6	2
	Observer	1	1	1	3	1	1	1	1		
V	Teacher	1	1	2	1	1	1	1	1	0	2
	Observer	2	2	1	2	2	2	2	2		

up if they are matched. However, if they are mismatched, the algorithm is fooled and the error is incorrectly discounted. This is shown in patterns IV and V.

A more complicated procedure could, no doubt, be devised to handle the special cases of patterns IV and V. However, the current procedure sufficed for our purposes. The direct match measure was used to compute a lower bound on the reliability and the corrected measure was used to compute an upper bound. The two measures are given as:

R_L = # matches/#valid blocks

R_U = (# matches + # shift corrections)/# valid blocks

The analysis consisted basically of an examination of the distribution of these reliability estimates over the sample of 124 validation records. Based on previous experience, the following judgments were used to evaluate the reliabilities:

Range	
90-100	Excellent
80-90	Very good
70-80	Good
60-70	Acceptable
0-60	Poor

More detailed analyses were attempted in order to identify some of the possible sources of error which might be affecting the reliability estimates. Internal sources of error were examined by counting the number of mismatches of various types. This is basically a "confusion" analysis which served to identify code categories which were indistinguishable by the teacher and the observer. Some likely places for this confusion to occur are in the management aspects of classroom activities, e.g., lunch, recess, and classroom management; and in adjacent group sizes, especially between "10-20" and "20 and above" categories. Adult involved was also checked since the observer did not know all the personnel in the classroom and was, therefore, likely to make more errors in this section.

Results

The means of the direct and corrected matching measures for the five dimensions are presented for each site in Table D-4. The means are generally in the good to very good range for content area and in the excellent range for the compensatory services and bilingual sections. For the group size and adult involved dimensions, the means drop into the acceptable range for the direct measures, while the means for the corrected measures are still in the good to very good range.

TABLE D-4

MEANS OF DIRECT AND CORRECTED MATCH MEASURES BY SITE

Site	N	Content Area		Compensatory Direct*	Bilingual Direct*	Group Size		Adult Involved	
		Direct	Corrected			Direct	Corrected	Direct	Corrected
Adams County #12	8	.701	.817	1.000	1.000	.691	.797	.610	.753
Alum Rock	7	.763	.849	.976	.981	.721	.823	.628	.757
Berkeley County	8	.714	.818	.987	1.000	.472	.579	.557	.710
Boston	6	.532	.775	.995	1.000	.550	.585	.523	.567
Charlotte	9	.642	.757	.985	1.000	.695	.818	.573	.746
Freeport	8	.770	.902	.990	1.000	.653	.760	.633	.758
Harrison County	9	.655	.764	.997	1.000	.799	.880	.636	.757
Houston	17	.773	.843	.968	1.000	.765	.826	.751	.836
Mesa	10	.757	.849	.991	.991	.759	.840	.666	.780
Oklahoma City	6	.669	.805	.987	1.000	.641	.776	.524	.660
Racine	7	.758	.828	.996	1.000	.829	.902	.815	.888
Santa Fe	9	.728	.810	.994	1.000	.578	.683	.518	.651
Wichita	9	.733	.826	.985	1.000	.701	.786	.646	.749
Winston-Salem	7	.720	.852	.974	.985	.664	.797	.535	.662
Yonkers	4	.716	.815	1.000	1.000	.634	.727	.720	.817
TOTAL	124	.716	.822	.987	.997	.688	.782	[illegible]	[illegible]

* Corrected means are not presented for the Compensatory and Bilingual areas since little significant change was made by the correction.

The surprisingly high means for the compensatory services and bilingual instruction areas are due to the rarity of these events in the classroom. Thus, the "matches" used in the reliability measure are based mostly on non-responses to these areas and are artificially high. For compensatory services, 75% of the cases reported no services and 98% of the cases reported no bilingual instruction.

Since only 3 of 124 cases reported any bilingual instruction, no further analysis of the data can be supported. For the 34 cases that reported some compensatory services, matching measures were computed using a new base. This new base was a count of the number of blocks where either the teacher or the observer reported that compensatory services were being delivered. The size of the base ranged from 1 to 19 with a median of 3. With such small numbers to use as baselines, the resulting reliability estimates will be very sensitive to the number of matches found between teacher and observer. For instance, with a base of 4, two matches give a reliability estimate of .50 while three give an estimate of .75. A change of one match moves the estimate from the "poor" level to the "good" level. Thus, this sub-analysis should be interpreted with caution. Seemingly low reliabilities may not, in fact, be very bad.

The means for the revised estimates are given in Table D-5. This table includes means of the base for each site to help in interpreting the reliability estimates. Taking the previous caution into consideration, the results are generally good with the exception of Wichita. In the latter case, the estimate is based on one case and should not be taken as a general indication of poor reliability.

Since the means for the content area section were sufficiently high, they were not considered further. The size and adult sections, however, had generally lower means and were subjected to more detailed analyses.

Taking the size variable first, a "confusion" matrix is presented in Table D-6. The entries in this table are the percentages of the total validation sample (N = 124) reporting

more than one mismatch between the teacher (column) category and the observer (row) category. For example, the figure "7.3" in row 1, column 2, means that in 9 of the 124 cases an observer coded 1 and a teacher coded 2 for more than 1 block. A one

Table D-5

MEANS OF MATCHING MEASURES FOR COMPENSATORY SERVICES USING ADJUSTED BASES

Site	N	Direct	Corrected	Base
Adams County #12	0	----	----	----
Alum Rock	3	.912	.982	8.33
Berkeley County	3	.583	.778	3.67
Boston	1	.800	1.000	5.00
Charlotte	2	.400	.625	4.50
Freeport	3	.619	.833	4.33
Harrison County	1	.667	1.000	3.00
Houston	6	.539	.725	7.00
Mesa	4	.500	.875	2.00
Oklahoma City	2	.500	.667	3.00
Racine	2	.833	1.000	5.00
Santa Fe	2	.500	.750	3.00
Wichita	1	.000	.167	6.00
Winston-Salem	4	.450	.800	4.00
Yonkers	-	----	----	----

block leeway is given since a single discrepancy might be due to a shift error. The larger percentages are in the column and row corresponding to large groups (code 5). The confusion with individual instruction (code 1) is especially troublesome. If it is assumed that the teacher is basing the judgment on the actual task the pupil is performing, then the pattern of Table D-5 suggests that the observer, not having access to this information, is responding only to the size of the group containing the child. This would explain the high percentage of cases with mismatches (13.7%)

indicated in row 5, column 1, of Table D-5. The higher percentage (33.9%) in row 1, column 5, of the table is harder to explain. One hypothesis is that teachers felt they were dealing with large groups even though they gave occasional aid to individual students.

TABLE D-6

PERCENTAGES OF SAMPLE REPORTING MORE THAN ONE CONFUSION OF GROUP SIZE

Observer	TEACHER					
	1	2	3	4	5	No response
1	x	7.3	8.1	15.3	33.9	2.4
2	8.1	x	5.6	4.0	12.1	3.2
3	5.6	1.6	x	9.7	9.7	2.4
4	6.5	1.6	6.5	x	21.0	4.0
5	13.7	6.5	7.3	18.5	x	25.0
No Response	5.6	0.8	0.8	4.0	16.9	x

This would occur, for instance, in free study periods, where a teacher might provide occasional individual attention to a few students.

A second observation is that there seems to be confusion between adjacent categories. Note especially the percentages which are blocked in Table D-6. These percentages, e.g., 21% for row 4, column 5, are generally higher than the rest. The inference is that the actual group size was close to the cutoff which distinguished one code from another, allowing for potential errors in estimating group sizes. This inference is strengthened by the occurrence of higher percentages for larger group sizes, i.e., 18.5 and 21, where the actual group size is more difficult to judge. While it would seem that a simple head count would have obviated the problem, the resulting error is not severe and could be discounted.

Allowing for this type of inaccuracy, a new matching measure could be computed, which allowed the teacher and observer to differ as long as the judgments were not too different. A judgment was defined as "not too different" if adjacent group sizes were coded by the teacher and observer. In these cases, a match was counted. The results are shown in Table D-7. As can be seen, the direct and corrected accuracy measures both increased sharply.

TABLE D-7

ADJUSTED MATCHING MEASURES FOR GROUP SIZE

SITE	DIRECT	CORRECTED
Adams County #12	.753	.853
Alum Rock	.804	.869
Berkeley County	.652	.735
Boston	.669	.698
Charlotte	.812	.905
Freeport	.794	.878
Harrison County	.841	.908
Houston	.829	.882
Mesa	.810	.886
Oklahoma City	.742	.842
Racine	.876	.930
Santa Fe	.691	.756
Wichita	.750	.827
Winston-Salem	.782	.885
Yonkers	.700	.773
AVERAGE	.775	.850

The implications of this analysis are two-fold. First, the teacher seems to err on the side of larger group sizes, suggesting that (s)he is reporting the planned structure of the activity rather than a particular interaction with a pupil. Thus, a large group activity would be coded as such even though attention might be given to an individual during this activity. Second, there is some ambiguity about the actual sizes of the groups involved, especially those relating to adjacent categories. This,

for the most part, is something that the analysis must live with. One can, perhaps, meet the problem directly by collapsing categories, especially 4 and 5 where the problem is greatest.

A similar confusion analysis is displayed in Table D-8, for the type of adult involved. Here the major finding is that observers tend to use the no adult and no response categories more than do teachers. Note, however, that the confusion between homeroom teacher and no adult seems to occur in both directions as can be seen in row 9, column 1, and row 1, column 9, of Table D-8. Again this may be due to teachers' basing their judgments on what the child is actually working on rather than on what his/her apparent activities are.

The observers, who don't know what the child is actually doing, elect to code a no response or no adult. This would occur, for instance, in a supervised independent activity, where the teacher feels that, even though there is no interaction with the pupil, there is an adult involved. It may be that the teacher or other adult made the assignment, or occasionally provides assistance, so the teacher feels (s)he or that other person is the responsible adult. That the reverse situation occurs, i.e., that the observer reports that the teacher is involved while the teacher reports that no adult is involved, could be explained in the same way by simply reversing the teacher and observer perceptions in the above discussion. This is not very satisfying since looking at the no adult row of Table D-8, the observer also codes no adult when the teacher codes some of the other adult involved categories, while the reverse is not always true.

For instance, the observer codes no adult when the teacher codes instructional specialist in 6.5% of the cases, while there are no cases where the teacher codes no adult and the observer codes instructional specialist. Since observers follow the child from activity to activity, it is possible that they are more aware of the child's experiences in non-homeroom situations. While this would explain the source of error, it does pose some

TABLE D-8

PERCENTAGES OF SAMPLE REPORTING MORE THAN ONE CONFUSION ON ADULT INVOLVED

OBSERVER	TEACHER									
	1	2	3	4	5	6	7	8	9	No Response
1. Homeroom Teacher	x	8.1	1.6	0.0	0.0	0.8	1.6	0.0	32.3	11.3
2. Another Classroom Teacher	4.8	x	4.8	0.0	2.4	0.0	0.8	0.0	9.7	4.0
3. Instructional Specialist	4.8	9.1	x	1.6	0.0	0.0	0.8	0.0	0.8	2.4
4. Student Teacher	0.0	0.0	1.6	x	0.8	0.0	0.0	0.0	1.6	0.0
5. Aide, Assistant, or Adult Tutor	5.6	1.6	0.8	0.8	x	0.0	0.8	0.0	4.8	4.0
6. Parent/Other Adult	0.0	0.0	0.8	0.0	1.6	x	0.0	0.0	0.0	0.8
7. Other Adult	1.6	0.0	4.0	0.0	0.8	0.8	x	0.0	1.6	0.8
8. Older Student/Peer Tutor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	x	0.8	0.0
9. No Adult Involved Directly	66.9	21.0	6.5	0.8	9.1	1.6	4.8	0.0	x	4.0
10. No Response	18.5	2.4	0.8	0.8	1.6	0.0	0.0	0.0	6.5	x

problems for analysis. Unless one assumes that the adult responsible for the pupil is important, regardless of direct involvement with the child, this source of confusion could affect the interpretation of the result.

In addition to this confusion in the usage of the no adult category, there seems to be some confusion among homeroom teacher, other teacher, and instructional specialist as indicated by the blocked area of Table D-8. This could mean that two adults were involved and that the teacher and observer had different opinions about who was in charge. It could also mean that situations occurred where the observer did not know who the real homeroom teacher was. In neither case is the problem serious, if it is presumed that the teacher, who knows the lesson plans, is in a position to make the better judgment.

Since there was no substantive justification for collapsing certain of the categories of adult involved, no adjustments were made to the matching estimates. In fact, it is necessary to treat the teacher and specialist categories separately for the analysis. Collapsing these, as suggested by the confusion matrix, would be in violation of the research objectives of the study.

Summary

In summary, measures of reliability based on counts of matches between teacher and observer ratings are at least adequate, and for content, compensatory services, and bilingual instruction are good to very good. Causes of low reliability were examined for the group size and adult involved sections. These could be associated with differences in the amount of information available to teachers and observers, and in the case of group sizes, to the ambiguity arising from similarity of adjacent categories. These results are generally very encouraging, especially if we choose to believe the hypothesis that teacher reports are more accurate because they have more information to use in making their judgments.

ANALYSES SUPPORTING THE DECISION TO EXCLUDE TITLE I CHILDREN WITHOUT COMPENSATORY LANGUAGE ARTS FROM THE ANALYTIC SAMPLE

The analyses of student experiences by Vanecko et al. (1977) were based on CALs completed for 592 Title I and 2,520 non-Title I students. These students were classified as Title I or non-Title I on the basis of Classroom Roster information supplied by homeroom teachers. Further investigation of the services actually received by Title I and non-Title I students shows that it is appropriate to exclude some of them from the present change analyses.

Table D-9 shows that of the 592 Title I students in the 1975-76 CAL sample, only 470 received some compensatory services (language, math, or other). There are 122 Title I students who received no compensatory services. Of the 470 Title I students receiving some compensatory instruction, 402 (86%) received language arts and 105 (22%) received math, while 36 (8%) received some other type of compensatory service. This table shows further that of the 2,520 non-Title I students in the CAL sample, 187 received compensatory language arts and 58 received compensatory math, leaving 2,308 non-Title I students with no compensatory services.

The analyses of student experiences reported by Vanecko et al. (1977) concentrated on Title I/non-Title I comparisons regardless of actual services received. This was based on the assumption that the Title I/non-Title I classification scheme is both accurate (students who are identified as Title I and non-Title I in truth are in those groups) and meaningful (there is an identifiable Title I program--a treatment which all Title I children, but no non-Title I children receive). Given the number of Title I children who do receive such instruction, it is apparent that the Title I/non-Title I distinction is dysfunctional in some respects. Another valid way to examine the data is to delete from the sample all Title I children who did not receive compensatory language arts, and all non-Title I children who did receive these services, leaving 402 Title I children and 2,520 non-Title I children.

TABLE D-9

SAMPLE SIZES ACROSS DISTRICTS BY TYPE OF COMPENSATORY SERVICES RECEIVED FOR TITLE I AND NON-TITLE I STUDENTS IN 1975-76

TITLE I STUDENTS

Received Compensatory Language Arts	Received Compensatory Mathematics: NO	Received Compensatory Mathematics: YES	
NO	158[1]	32	(190)
YES	329	73	(402)
	(487)	(105)	(592)

NON-TITLE I STUDENTS

Received Compensatory Language Arts	Received Compensatory Mathematics: NO	Received Compensatory Mathematics: YES	
NO	2,308[2]	25	(2,333)
YES	154	33	(187)
	(2,462)	(58)	(2,520)

[1] 36 of the 158 Title I students who did not receive either compensatory language arts or mathematics received compensatory services in some other subject.

[2] 2,308 Non-Title I students received no compensatory services.

It is not feasible to delete those students not receiving compensatory mathematics, as is shown in Tables D-10 and D-11 which give a breakdown of sample sizes for language arts and math by district. The fact that many Title I children in the sample do not receive compensatory math services is not particularly worrisome, as our primary interest is in language arts.

We prefer not to exclude the small numbers of non-Title I students who received compensatory services from our analyses. Thus, Table D-12 presents the average number of minutes of regular and compensatory language arts received by Title I students by site and sample type (restricted--excludes Title I children with no compensatory language arts--vs. unrestricted--all Title I children).

The effect of removing Title I students with no compensatory language arts instruction is to raise the average number of minutes of compensatory language arts received by Title I students across all districts (from 24 minutes in the unrestricted to 36 minutes in the restricted sample). This procedure also lowers the estimate of the amount of time spent by Title I students in regular language arts instruction (from 109 to 105). Therefore, the effect of placing this restriction on the Title I sample is to confirm and heighten the finding reported earlier: the receipt of compensatory language arts by Title I students appears to be accompanied by a loss of regular language arts instruction.

TABLE D-10

NUMBER OF STUDENTS RECEIVING REGULAR AND COMPENSATORY LANGUAGE ARTS BY TITLE I STATUS IN 1975-76

DISTRICT	TITLE I STUDENTS				NON-TITLE I STUDENTS			
	REGULAR YES		REGULAR NO		REGULAR YES		REGULAR NO	
	COMPENSATORY YES	COMPENSATORY NO	COMPENSATORY YES	COMPENSATORY NO	COMPENSATORY YES	COMPENSATORY NO	COMPENSATORY YES	COMPENSATORY NO
ADAMS COUNTY #12	8	1	0	0	4	100	0	0
ALUM ROCK	14	16	0	0	21	71	0	0
BERKELEY COUNTY	9	16	0	0	5	69	0	0
BOSTON	46	15	0	0	18	215	0	0
CHARLOTTE	95	29	0	1	21	352	0	1
HARRISON COUNTY	34	11	0	1	3	83	0	0
HOUSTON	56	41	0	0	69	685	0	0
MESA	26	18	0	0	6	118	0	0
NEWPORT	2	3	0	0	3	38	0	0
RACINE	28	4	0	0	13	146	0	1
SANTA FE	24	20	0	0	3	91	0	0
WINSTON-SALEM	52	8	0	0	11	261	0	0
YONKERS	8	6	0	0	10	102	0	0
TOTAL	402	188	0	2	187	2,331	0	2

TABLE D-11

NUMBER OF STUDENTS RECEIVING REGULAR AND COMPENSATORY MATHEMATICS BY TITLE I STATUS IN 1975-76

DISTRICT	TITLE I STUDENTS				NON-TITLE I STUDENTS			
	REGULAR				REGULAR			
	YES		NO		YES		NO	
	COMPENSATORY		COMPENSATORY		COMPENSATORY		COMPENSATORY	
	YES	NO	YES	NO	YES	NO	YES	NO
ADAMS COUNTY #12	0	9	0	0	1	103	0	0
ALUM ROCK	3	27	0	0	8	84	0	0
BERKELEY COUNTY	4	21	0	0	2	72	0	0
BOSTON	10	48	1	2	5	227	0	1
CHARLOTTE	36	88	0	1	7	366	0	1
HARRISON COUNTY	1	44	0	1	1	85	0	0
HOUSTON	26	70	0	1	22	729	1	2
MESA	16	26	2	0	6	115	0	3
NEWPORT	1	4	0	0	0	41	0	0
RACINE	0	32	0	0	3	157	0	0
SANTA FE	0	44	0	0	0	94	0	0
WINSTON-SALEM	1	59	0	0	2	268	0	2
YONKERS	4	9	0	1	0	112	0	0
TOTAL	102	481	3	6	57	2453	1	9

TABLE D-12

AVERAGE NUMBER OF MINUTES PER DAY OF COMPENSATORY AND REGULAR LANGUAGE ARTS RECEIVED BY TITLE I STUDENTS BY DISTRICT AND SAMPLE TYPE IN 1975-76

DISTRICT	REGULAR LANGUAGE ARTS		COMPENSATORY LANGUAGE ARTS	
	RESTRICTED[1]	UNRESTRICTED[2]	RESTRICTED[1]	UNRESTRICTED[2]
ADAMS COUNTY #12	109	111	28	24
ALUM ROCK	69	88	40	19
BERKELEY COUNTY	111	134	35	13
BOSTON	90	92	42	31
CHARLOTTE	97	98	35	27
HARRISON COUNTY	120	120	28	21
HOUSTON	124	128	38	22
MESA	96	105	37	22
NEWPORT	123	106	13	5
RACINE	112	111	34	29
SANTA FE	111	109	27	15
WINSTON-SALEM	112	114	40	35
YONKERS	69	85	30	17
AVERAGE	105	109	36	24

[1] Restricted sample--excludes Title I students with no compensatory language arts.

[2] Unrestricted sample--includes all Title I students.

MINUTES PER DAY DEVOTED TO VARIOUS

TYPES OF INSTRUCTION AS MEASURED

BY CAL IN EACH DISTRICT

TABLE D-13

MINUTES PER DAY DEVOTED TO VARIOUS TYPES OF INSTRUCTION BY TITLE I STATUS IN ADAMS COUNTY #12

INSTRUCTIONAL EXPERIENCE	TITLE I			NON-TITLE I		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Content Area						
Regular Language Arts	109	117	8	119	131	12
Compensatory Language Arts	28	27	-1	1	0	-1
Regular Mathematics	52	49	-3	51	51	0
Compensatory Mathematics	0	0	0	0	0	0
Science, Social Studies	20	41	21††	43	44	1
Arts, Cultural Ed., Physical Ed.	50	41	-9	52	40	-12
Special Services	9	4	-5	2	1	-1
Lunch, Recess, Other	101	103	2	118	105	-13
School Day (total of all content areas)	369	382	13	386	372	-14
Instructional Day (school day - lunch)	268	279	11	268	267	-1

†Change is significant at the .05 level.

††Change is significant at the .05 level, but occurs systemwide (for the non-Title I group as well).

TABLE D-14

MINUTES PER DAY DEVOTED TO
VARIOUS TYPES OF INSTRUCTION
BY TITLE I STATUS
IN ALUM ROCK

INSTRUCTIONAL EXPERIENCE	TITLE I			NON-TITLE I		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Content Area						
Regular Language Arts	68	95	27††	100	114	14
Compensatory Language Arts	41	31	-10	7	3	-4
Regular Mathematics	43	46	3	47	53	6
Compensatory Mathematics	9	1	-8†	1	0	-1
Science, Social Studies	27	26	-1	30	35	5
Arts, Cultural Ed., Physical Ed.	62	36	-26††	47	34	-13
Special Services	1	2	1	0	0	0
Lunch, Recess, Other	72	91	19††	87	93	6
School Day (total of all content areas)	323	328	5	319	332	13
Instructional Day (school day - lunch)	251	237	-14	232	239	7

†Change is significant at the .05 level.

††Change is significant at the .05 level, but occurs systemwide (for the non-Title I group as well).

TABLE D-15

MINUTES PER DAY DEVOTED TO
VARIOUS TYPES OF INSTRUCTION
BY TITLE I STATUS
IN BERKELEY COUNTY

INSTRUCTIONAL EXPERIENCE	TITLE I			NON-TITLE I		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Content Area						
Regular Language Arts	111	141	30††	143	148	5
Compensatory Language Arts	35	26	-9	1	1	0
Regular Mathematics	47	51	4	58	58	0
Compensatory Mathematics	7	9	2	0	0	0
Science, Social Studies	40	42	2	45	41	-4
Arts, Cultural Ed., Physical Ed.	36	36	0	38	44	6
Special Services	5	0	-5	5	1	-4
Lunch, Recess, Other	104	108	4	120	121	1
School Day (total of all content areas)	385	413	28††	410	414	4
Instructional Day (school day - lunch)	281	305	24	290	293	3

†Change is significant at the .05 level.

††Change is significant at the .05 level, but occurs systemwide (for the non-Title I group as well).

TABLE D-16

MINUTES PER DAY DEVOTED TO
VARIOUS TYPES OF INSTRUCTION
BY TITLE I STATUS
IN BOSTON

INSTRUCTIONAL EXPERIENCE	TITLE I			NON-TITLE I		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Content Area						
Regular Language Arts	90	106	16	106	108	2
Compensatory Language Arts	41	34	-7	2	2	0
Regular Mathematics	40	46	6	48	45	-3
Compensatory Mathematics	3	1	-2	1	5	4
Science, Social Studies	27	30	3	32	35	3
Arts, Cultural Ed., Physical Ed.	33	25	-8	45	50	5
Special Services	3	4	1	1	0	-1
Lunch, Recess, Other	106	105	-1	104	108	4
School Day (total of all content areas)	343	351	8	339	353	14
Instructional Day (school day - lunch)	237	246	9	235	245	10

†Change is significant at the .05 level.

††Change is significant at the .05 level, but occurs systemwide (for the non-Title I group as well).

TABLE D-17

MINUTES PER DAY DEVOTED TO
VARIOUS TYPES OF INSTRUCTION
BY TITLE I STATUS
IN CHARLOTTE

INSTRUCTIONAL EXPERIENCE	TITLE I			NON-TITLE I		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Content Area						
Regular Language Arts	97	94	-3	110	110	0
Compensatory Language Arts	35	27	-8†	1	0	-1
Regular Mathematics	44	43	-1	48	47	-1
Compensatory Mathematics	8	7	-1	0	0	0
Science, Social Studies	38	31	-7††	46	37	-9
Arts, Cultural Ed., Physical Ed.	49	38	-11††	57	42	-15
Special Services	3	4	1	2	1	-1
Lunch, Recess, Other	85	84	-1	93	92	-1
School Day (total of all content areas)	358	328	-30††	357	329	-28
Instructional Day (school day - lunch)	273	244	-29††	264	237	-27

†Change is significant at the .05 level.

††Change is significant at the .05 level, but occurs systemwide (for the non-Title I group as well).

TABLE D-18

MINUTES PER DAY DEVOTED TO
VARIOUS TYPES OF INSTRUCTION
BY TITLE I STATUS
IN HARRISON COUNTY

INSTRUCTIONAL EXPERIENCE	TITLE I			NON-TITLE I		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Content Area						
Regular Language Arts	120	117	-3	130	130	0
Compensatory Language Arts	28	30	2	1	0	-1
Regular Mathematics	49	51	2	50	50	0
Compensatory Mathematics	0	0	0	0	0	0
Science, Social Studies	37	44	7	44	50	6
Arts, Cultural Ed., Physical Ed.	49	45	-4	56	47	-9
Special Services	3	1	-2	1	1	0
Lunch, Recess, Other	118	119	1	118	128	10
School Day (total of all content areas)	403	406	3	400	406	6
Instructional Day (school day - lunch)	285	287	2	282	278	-4

†Change is significant at the .05 level.

††Change is significant at the .05 level, but occurs systemwide (for the non-Title I group as well).

TABLE D-19

MINUTES PER DAY DEVOTED TO VARIOUS TYPES OF INSTRUCTION BY TITLE I STATUS IN HOUSTON

INSTRUCTIONAL EXPERIENCE	TITLE I			NON-TITLE I		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Content Area						
Regular Language Arts	122	145	23†	145	153	8
Compensatory Language Arts	38	34	-4	3	1	-2
Regular Mathematics	51	51	0	56	56	0
Compensatory Mathematics	10	8	-2	1	1	0
Science, Social Studies	58	53	-5	62	64	2
Arts, Cultural Ed., Physical Ed.	47	36	-11††	57	46	-11
Special Services	4	2	-2	2	0	-2
Lunch, Recess, Other	64	65	1	68	71	3
School Day (total of all content areas)	394	394	0	394	392	-2
Instructional Day (school day - lunch)	330	329	-1	326	321	-5

†Change is significant at the .05 level.

††Change is significant at the .05 level, but occurs systemwide (for the non-Title I group as well).

TABLE D-20

MINUTES PER DAY DEVOTED TO
VARIOUS TYPES OF INSTRUCTION
BY TITLE I STATUS
IN MESA

INSTRUCTIONAL EXPERIENCE	TITLE I			NON-TITLE I		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Content Area						
Regular Language Arts	96	116	20††	109	123	14
Compensatory Language Arts	37	22	-15†	1	2	1
Regular Mathematics	41	40	-1	46	45	-1
Compensatory Mathematics	9	7	-2	1	1	0
Science, Social Studies	26	38	12†	43	37	-6
Arts, Cultural Ed., Physical Ed.	54	35	-19††	63	45	-18
Special Services	2	3	1	2	1	-1
Lunch, Recess, Other	100	95	-5	104	103	-1
School Day (total of all content areas)	365	356	-9	369	357	-12
Instructional Day (school day - lunch)	265	261	-4	265	254	-11

†Change is significant at the .05 level.

††Change is significant at the .05 level, but occurs systemwide (for the non-Title I group as well).

TABLE D-21

MINUTES PER DAY DEVOTED TO
VARIOUS TYPES OF INSTRUCTION
BY TITLE I STATUS
IN NEWPORT

INSTRUCTIONAL EXPERIENCE	TITLE I			NON-TITLE I		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Content Area						
Regular Language Arts	122	116	-6	136	129	-7
Compensatory Language Arts	12	24	12†	2	0	-2
Regular Mathematics	50	55	5	51	56	5
Compensatory Mathematics	0	0	0	0	0	0
Science, Social Studies	50	40	-10	46	45	-1
Arts, Cultural Ed., Physical Ed.	33	42	9	40	47	7
Special Services	0	4	4	0	0	0
Lunch, Recess, Other	90	86	-4	90	88	-2
School Day (total of all content areas)	357	367	10	365	366	1
Instructional Day (school day - lunch)	267	281	14	275	278	3

†Change is significant at the .05 level.

††Change is significant at the .05 level, but occurs systemwide (for the non-Title I group as well).

TABLE D-22

MINUTES PER DAY DEVOTED TO
VARIOUS TYPES OF INSTRUCTION
BY TITLE I STATUS
IN RACINE

INSTRUCTIONAL EXPERIENCE	TITLE I			NON-TITLE I		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Content Area						
Regular Language Arts	112	124	12	129	136	7
Compensatory Language Arts	34	25	-9†	2	2	0
Regular Mathematics	49	55	6††	53	56	3
Compensatory Mathematics	0	0	0	0	0	0
Science, Social Studies	32	32	0	36	38	2
Arts, Cultural Ed., Physical Ed.	63	60	-3	69	62	-7
Special Services	3	2	-1	1	0	-1
Lunch, Recess, Other	94	95	1	100	96	-4
School Day (total of all content areas)	397	393	-4	390	390	0
Instructional Day (school day - lunch)	303	298	-5	290	294	4

†Change is significant at the .05 level.

††Change is significant at the .05 level, but occurs systemwide (for the non-Title I group as well).

TABLE D-23

MINUTES PER DAY DEVOTED TO
VARIOUS TYPES OF INSTRUCTION
BY TITLE I STATUS
IN SANTA FE

INSTRUCTIONAL EXPERIENCE	TITLE I			NON-TITLE I		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Content Area						
Regular Language Arts	111	107	-4	109	119	10
Compensatory Language Arts	27	24	-3	1	0	-1
Regular Mathematics	47	46	-1	43	46	3
Compensatory Mathematics	0	1	1	0	0	0
Science, Social Studies	33	41	8	48	45	-3
Arts, Cultural Ed., Physical Ed.	56	36	-20††	61	50	-11
Special Services	4	3	-1	1	1	0
Lunch, Recess, Other	127	121	-6	125	119	-6
School Day (total of all content areas)	405	379	-26†	388	380	-8
Instructional Day (school day - lunch)	278	258	-20††	263	261	-2

†Change is significant at the .05 level.

††Change is significant at the .05 level, but occurs systemwide (for the non-Title I group as well).

TABLE D-24

MINUTES PER DAY DEVOTED TO VARIOUS TYPES OF INSTRUCTION BY TITLE I STATUS IN WINSTON-SALEM

INSTRUCTIONAL EXPERIENCE	TITLE I			NON-TITLE I		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Content Area						
Regular Language Arts	112	124	12††	137	143	6
Compensatory Language Arts	41	41	0	2	1	-1
Regular Mathematics	47	48	1	48	51	3
Compensatory Mathematics	0	1	1	0	0	0
Science, Social Studies	34	33	-1	40	40	0
Arts, Cultural Ed., Physical Ed.	47	37	-10††	52	43	-9
Special Services	1	2	1	3	1	-2
Lunch, Recess, Other	81	81	0	84	87	3
School Day (total of all content areas)	363	367	4	366	366	0
Instructional Day (school day - lunch)	282	286	4	282	279	-3

†Change is significant at the .05 level.

††Change is significant at the .05 level, but occurs systemwide (for the non-Title I group as well).

TABLE D-25

MINUTES PER DAY DEVOTED TO VARIOUS TYPES OF INSTRUCTION BY TITLE I STATUS IN YONKERS

INSTRUCTIONAL EXPERIENCE	TITLE I			NON-TITLE I		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Content Area						
Regular Language Arts	67	103	36††	109	133	24
Compensatory Language Arts	30	33	3	2	7	5
Regular Mathematics	46	36	-10	50	55	5
Compensatory Mathematics	16	12	-4	0	3	3
Science, Social Studies	26	29	3	50	39	-11
Arts, Cultural Ed., Physical Ed.	58	37	-21††	45	36	-9
Special Services	8	1	-7†	2	1	-1
Lunch, Recess, Other	139	138	-1	128	120	-8
School Day (total of all content areas)	390	389	-1	386	394	8
Instructional Day (school day - lunch)	251	251	0	258	274	16

†Change is significant at the .05 level.

††Change is significant at the .05 level, but occurs systemwide (for the non-Title I group as well).

PERCENTAGE OF TIME DEVOTED TO
VARIOUS TYPES OF LANGUAGE ARTS INSTRUCTION
AS MEASURED BY CAL IN EACH DISTRICT

TABLE D-26

PERCENTAGE OF TIME DEVOTED TO VARIOUS TYPES OF LANGUAGE ARTS INSTRUCTION DELIVERED TO STUDENTS BY TITLE I STATUS IN ADAMS COUNTY #12

INSTRUCTIONAL EXPERIENCE	TITLE I			NON-TITLE I		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Regular Language Arts						
Individualized (1)	22	12	-10	13	16	3
Small (2-5)	13	17	4	9	6	-3
Medium (6-20)	30	30	0	27	28	1
Large (21+)	36	42	6	52	50	-2
Professional	65	74	9	72	76	4
Instructional Specialist	0	1	1	1	2	1
Paraprofessional	2	3	1	3	3	0
No Instructor	34	22	-12	24	19	-5
Compensatory Language Arts						
Individualized (1)	7	7	0	42	50	8
Small (2-5)	30	55	25	50	50	0
Medium (6-20)	62	37	-25	0	0	0
Large (21+)	0	0	0	8	0	-8
Professional	0	5	5	0	0	0
Instructional Specialist	83	93	10	100	100	0
Paraprofessional	10	1	-9†	0	0	0
No Instructor	6	0	-6†	0	0	0

†Change is significant at the .05 level.

††Change is significant at the .05 level, but occurs systemwide (for the non-Title I group as well).

TABLE D-27

PERCENTAGE OF TIME DEVOTED TO VARIOUS TYPES
OF LANGUAGE ARTS INSTRUCTION DELIVERED
TO STUDENTS BY TITLE I STATUS
IN ALUM ROCK

INSTRUCTIONAL EXPERIENCE	TITLE I			NON-TITLE I		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Regular Language Arts						
Individualized (1)	42	14	-28†	16	17	1
Small (2-5)	16	8	-8	18	9	-9
Medium (6-20)	28	40	12	37	40	3
Large (21+)	15	38	23††	29	35	6
Professional	51	60	9	55	66	11
Instructional Specialist	1	2	1	1	2	1
Paraprofessional	13	9	-4	15	5	-10
No Instructor	35	29	-6	29	27	-2
Compensatory Language Arts						
Individualized (1)	36	37	1	22	28	6
Small (2-5)	36	24	-12	42	22	-20
Medium (6-20)	26	33	7	30	23	-7
Large (21+)	1	5	4	7	28	21
Professional	19	5	-14	3	0	-3
Instructional Specialist	32	51	19	68	78	10
Paraprofessional	34	39	5	24	22	-2
No Instructor	16	6	-10	5	0	-5

†Change is significant at the .05 level.

††Change is significant at the .05 level, but occurs systemwide (for the non-Title I group as well).

TABLE D-28

PERCENTAGE OF TIME DEVOTED TO VARIOUS TYPES OF LANGUAGE ARTS INSTRUCTION DELIVERED TO STUDENTS BY TITLE I STATUS IN BERKELEY COUNTY

INSTRUCTIONAL EXPERIENCE	TITLE I			NON-TITLE I		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Regular Language Arts						
Individualized (1)	12	2	-10	9	6	-3
Small (2-5)	19	1	-18†	5	3	-2
Medium (6-20)	15	55	40††	33	42	9
Large (21+)	55	43	-12	53	49	-4
Professional	86	88	2	80	89	9
Instructional Specialist	1	1	0	2	1	-1
Paraprofessional	1	2	1	3	2	-1
No Instructor	12	9	-3	14	7	-7
Compensatory Language Arts						
Individualized (1)	25	18	-7	38	10	-28
Small (2-5)	46	26	-20	16	50	34
Medium (6-20)	16	51	35	16	40	24
Large (21+)	13	5	-8	31	0	-31
Professional	12	16	4	69	20	-49
Instructional Specialist	62	76	14	31	80	49
Paraprofessional	22	8	-14	0	0	0
No Instructor	4	0	-4	0	0	0

†Change is significant at the .05 level.

††Change is significant at the .05 level, but occurs systemwide (for the non-Title I group as well).

TABLE D-29

PERCENTAGE OF TIME DEVOTED TO VARIOUS TYPES OF LANGUAGE ARTS INSTRUCTION DELIVERED TO STUDENTS BY TITLE I STATUS IN BOSTON

INSTRUCTIONAL EXPERIENCE	TITLE I			NON-TITLE I		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Regular Language Arts						
Individualized (1)	13	24	11	12	14	2
Small (2-5)	17	12	-5	13	8	-5
Medium (6-20)	46	19	-27††	47	40	-7
Large (21+)	24	45	21††	28	38	10
Professional	78	62	-16	72	81	9
Instructional Specialist	2	7	5	2	1	-1
Paraprofessional	2	10	8	4	3	-1
No Instructor	17	20	3	22	15	-7
Compensatory Language Arts						
Individualized (1)	7	14	7	14	0	-14
Small (2-5)	47	32	-15	46	0	-46
Medium (6-20)	44	54	10	40	0	-40
Large (21+)	2	0	-2	0	100	100
Professional	4	12	8	13	100	87
Instructional Specialist	88	74	-14	63	0	-63
Paraprofessional	5	3	-2	6	0	-6
No Instructor	2	11	9	17	0	-17

†Change is significant at the .05 level.

††Change is significant at the .05 level, but occurs systemwide (for the non-Title I group as well).

TABLE D-30

PERCENTAGE OF TIME DEVOTED TO VARIOUS TYPES OF LANGUAGE ARTS INSTRUCTION DELIVERED TO STUDENTS BY TITLE I STATUS IN CHARLOTTE

INSTRUCTIONAL EXPERIENCE	TITLE I			NON-TITLE I		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Regular Language Arts						
Individualized (1)	13	16	3	16	15	-1
Small (2-5)	16	9	-7†	7	6	-1
Medium (6-20)	39	31	-8††	35	36	1
Large (21+)	31	43	12†	41	43	2
Professional	74	77	3	72	75	3
Instructional Specialist	6	2	-4†	4	3	-1
Paraprofessional	5	3	-2	3	3	0
No Instructor	16	18	2	21	19	-2
Compensatory Language Arts						
Individualized (1)	16	14	-2	12	19	7
Small (2-5)	51	43	-8	42	49	7
Medium (6-20)	34	42	8	46	33	-13
Large (21+)	0	1	1	1	0	-1
Professional	0	13	13†	2	11	9
Instructional Specialist	87	79	-8	83	75	-8
Paraprofessional	10	4	-6†	8	14	6
No Instructor	3	4	1	7	0	-7

†Change is significant at the .05 level.

††Change is significant at the .05 level, but occurs systemwide (for the non-Title I group as well).

TABLE D-31

PERCENTAGE OF TIME DEVOTED TO VARIOUS TYPES OF LANGUAGE ARTS INSTRUCTION DELIVERED TO STUDENTS BY TITLE I STATUS IN HARRISON COUNTY

INSTRUCTIONAL EXPERIENCE	TITLE I			NON-TITLE I		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Regular Language Arts						
Individualized (1)	7	7	0	9	9	0
Small (2-5)	9	6	-3	5	3	-2
Medium (6-20)	34	43	9	28	35	7
Large (21+)	51	45	-6	58	54	-4
Professional	81	90	9	78	85	7
Instructional Specialist	1	0	-1††	0	0	0
Paraprofessional	3	0	-3††	2	1	-1
No Instructor	14	10	-4	20	14	-6
Compensatory Language Arts						
Individualized (1)	3	5	3	0	0	0
Small (2-5)	38	30	-8	61	0	-61
Medium (6-20)	59	63	4	39	0	-39
Large (21+)	1	3	2	0	100	100
Professional	2	4	2	0	100	100
Instructional Specialist	94	96	2	61	0	-61
Paraprofessional	3	0	-3	39	0	-39
No Instructor	1	0	-1	0	0	0

†Change is significant at the .05 level.

††Change is significant at the .05 level, but occurs systemwide (for the non-Title I group as well).

TABLE D-32

PERCENTAGE OF TIME DEVOTED TO VARIOUS TYPES OF LANGUAGE ARTS INSTRUCTION DELIVERED TO STUDENTS BY TITLE I STATUS IN HOUSTON

INSTRUCTIONAL EXPERIENCE	TITLE I			NON-TITLE I		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Regular Language Arts						
Individualized (1)	7	5	-2	7	5	-2
Small (2-5)	11	7	-4	5	4	-1
Medium (6-20)	35	49	14†	38	41	3
Large (21+)	48	39	-9	49	50	1
Professional	84	77	-7	80	81	1
Instructional Specialist	1	2	1	2	1	-1
Paraprofessional	3	4	1	1	4	3
No Instructor	11	16	5	17	14	-3
Compensatory Language Arts						
Individualized (1)	6	7	1	12	12	0
Small (2-5)	26	27	1	43	23	-20
Medium (6-20)	63	61	-2	35	35	0
Large (21+)	5	5	0	10	30	20
Professional	6	6	0	11	29	18
Instructional Specialist	86	82	-4	81	65	-16
Paraprofessional	6	7	1	3	3	0
No Instructor	2	5	3	5	4	-1

†Change is significant at the .05 level.

††Change is significant at the .05 level, but occurs systemwide (for the non-Title I group as well).

TABLE D-33

PERCENTAGE OF TIME DEVOTED TO VARIOUS TYPES OF LANGUAGE ARTS INSTRUCTION DELIVERED TO STUDENTS BY TITLE I STATUS IN MESA

INSTRUCTIONAL EXPERIENCE	TITLE I			NON-TITLE I		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Regular Language Arts						
Individualized (1)	13	21	8	19	19	0
Small (2-5)	16	12	-4	9	6	-3
Medium (6-20)	19	17	-2	19	18	-1
Large (21+)	52	49	-3	53	56	3
Professional	75	65	-10	67	72	5
Instructional Specialist	2	2	0	2	1	-1
Paraprofessional	4	7	3	3	5	2
No Instructor	19	26	7	28	22	-6
Compensatory Language Arts						
Individualized (1)	7	1	-6	2	15	13
Small (2-5)	90	96	6	85	85	0
Medium (6-20)	3	3	0	0	0	0
Large (21+)	0	0	0	13	0	-13
Professional	1	0	-1	13	0	-13
Instructional Specialist	22	17	-5	45	37	-8
Paraprofessional	77	83	6	42	63	21
No Instructor	0	0	0	0	0	0

†Change is significant at the .05 level.

††Change is significant at the .05 level, but occurs systemwide (for the non-Title I group as well).

TABLE D-34

PERCENTAGE OF TIME DEVOTED TO VARIOUS TYPES OF LANGUAGE ARTS INSTRUCTION DELIVERED TO STUDENTS BY TITLE I STATUS IN NEWPORT

INSTRUCTIONAL EXPERIENCE	TITLE I			NON-TITLE I		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Regular Language Arts						
Individualized (1)	0	8	8	16	8	-8
Small (2-5)	24	25	1	9	9	0
Medium (6-20)	5	32	27	31	34	3
Large (21+)	72	35	-37†	43	48	5
Professional	71	67	-4	61	69	8
Instructional Specialist	0	3	3	2	4	2
Paraprofessional	0	4	4	1	2	1
No Instructor	30	27	-3	36	24	-12
Compensatory Language Arts						
Individualized (1)	0	17	17	67	0	-67
Small (2-5)	100	83	-17	33	0	-33
Medium (6-20)	0	0	0	0	0	0
Large (21+)	0	0	0	0	0	0
Professional	0	9	9	0	0	0
Instructional Specialist	100	83	-17	100	0	-100
Paraprofessional	0	8	8	0	0	0
No Instructor	0	0	0	0	0	0

†Change is significant at the .05 level.

††Change is significant at the .05 level, but occurs systemwide (for the non-Title I group as well).

TABLE D-35

PERCENTAGE OF TIME DEVOTED TO VARIOUS TYPES OF LANGUAGE ARTS INSTRUCTION DELIVERED TO STUDENTS BY TITLE I STATUS IN RACINE

INSTRUCTIONAL EXPERIENCE	TITLE I			NON-TITLE I		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Regular Language Arts						
Individualized (1)	8	6	-2	5	8	3
Small (2-5)	4	5	1	2	5	3
Medium (6-20)	43	34	-9	18	13	-5
Large (21+)	45	55	10	75	74	-1
Professional	85	85	0	84	82	-2
Instructional Specialist	1	2	1	3	3	0
Paraprofessional	3	2	-1	2	2	0
No Instructor	11	11	0	11	13	2
Compensatory Language Arts						
Individualized (1)	20	31	11	22	0	-22
Small (2-5)	80	68	-12	69	100	31
Medium (6-20)	0	1	1	0	0	0
Large (21+)	0	0	0	9	0	-9
Professional	0	2	2	6	25	19
Instructional Specialist	11	10	-1	17	50	33
Paraprofessional	88	87	-1	71	25	-46
No Instructor	1	1	0	6	0	-6

†Change is significant at the .05 level.

††Change is significant at the .05 level, but occurs systemwide (for the non-Title I group as well).

TABLE D-36

PERCENTAGE OF TIME DEVOTED TO VARIOUS TYPES OF LANGUAGE ARTS INSTRUCTION DELIVERED TO STUDENTS BY TITLE I STATUS IN SANTA FE

INSTRUCTIONAL EXPERIENCE	TITLE I			NON-TITLE I		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Regular Language Arts						
Individualized (1)	18	16	-2	14	12	-2
Small (2-5)	25	31	6	16	14	-2
Medium (6-20)	39	29	-10	35	35	0
Large (21+)	17	24	7	35	39	4
Professional	62	62	0	69	70	1
Instructional Specialist	2	2	0	1	0	-1
Paraprofessional	12	12	0	9	8	-1
No Instructor	25	24	-1	21	22	1
Compensatory Language Arts						
Individualized (1)	10	6	-4	0	0	0
Small (2-5)	73	75	2	33	0	-33
Medium (6-20)	16	18	2	0	0	0
Large (21+)	0	0	0	67	0	-67
Professional	5	13	8	67	0	-67
Instructional Specialist	82	79	-2	33	0	-33
Paraprofessional	14	7	-7	0	0	0
No Instructor	0	1	1	0	0	0

†Change is significant at the .05 level.

††Change is significant at the .05 level, but occurs systemwide (for the non-Title I group as well).

TABLE D-37

PERCENTAGE OF TIME DEVOTED TO VARIOUS TYPES OF LANGUAGE ARTS INSTRUCTION DELIVERED TO STUDENTS BY TITLE I STATUS IN WINSTON-SALEM

INSTRUCTIONAL EXPERIENCE	TITLE I			NON-TITLE I		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Regular Language Arts						
Individualized (1)	8	6	-2	9	8	-1
Small (2-5)	7	6	-1	6	4	-2
Medium (6-20)	48	43	-5	39	47	8
Large (21+)	38	45	7	47	41	-6
Professional	78	77	-1	71	73	2
Instructional Specialist	2	3	1	2	2	0
Paraprofessional	2	2	0	3	3	0
No Instructor	19	19	0	24	22	-2
Compensatory Language Arts						
Individualized (1)	5	6	1	32	34	2
Small (2-5)	50	58	8	44	46	2
Medium (6-20)	45	36	-9	24	19	-5
Large (21+)	0	1	1	0	0	0
Professional	2	13	11†	15	35	20
Instructional Specialist	81	68	-13	35	51	16
Paraprofessional	13	18	5	49	9	-40
No Instructor	6	3	-3	1	4	3

†Change is significant at the .05 level.

††Change is significant at the .05 level, but occurs systemwide (for the non-Title I group as well).

TABLE D-38

PERCENTAGE OF TIME DEVOTED TO VARIOUS TYPES OF LANGUAGE ARTS INSTRUCTION DELIVERED TO STUDENTS BY TITLE I STATUS IN YONKERS

INSTRUCTIONAL EXPERIENCE	TITLE I			NON-TITLE I		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Regular Language Arts						
Individualized (1)	19	20	1	26	20	-6
Small (2-5)	13	14	1	8	10	2
Medium (6-20)	10	27	17	29	32	3
Large (21+)	58	39	-19	36	38	2
Professional	54	69	15	57	61	4
Instructional Specialist	0	5	5	4	6	2
Paraprofessional	0	4	4	4	5	1
No Instructor	46	22	-24††	35	29	-6
Compensatory Language Arts						
Individualized (1)	7	21	14	25	78	53
Small (2-5)	61	7	-54	45	4	-41
Medium (6-20)	26	63	37	30	9	-21
Large (21+)	7	10	3	0	8	8
Professional	7	2	-5	4	0	-4
Instructional Specialist	67	88	21	74	50	-24
Paraprofessional	0	0	0	17	12	-5
No Instructor	26	10	-16	4	38	34

†Change is significant at the .05 level.

††Change is significant at the .05 level, but occurs systemwide (for the non-Title I group as well).

MISCELLANEOUS TABLES SUPPORTING
CHAPTER 4 TEXT

TABLE D-39

DISTRICT LEVEL CHANGES IN SELECTED CONTENT AREAS
FOR TITLE I AND NON-TITLE I STUDENTS*

DISTRICT/CRITERIA	TITLE I						NON-TITLE I					
	REGULAR MATHEMATICS		COMPENSATORY MATHEMATICS		SCIENCE AND SOCIAL STUDIES		REGULAR MATHEMATICS		COMPENSATORY MATHEMATICS		SCIENCE AND SOCIAL STUDIES	
	1976-77	Change	1976-77	Change	1976-77	Change	1976-77	Change	1976-77	Change	1976-77	Change
Districts that serve low-achieving students in all elementary schools												
Adams County #12	49	-3	0	0	41	21†	51	0	0	0	44	1
Harrison County	51	2	0	0	44	7	50	0	0	0	50	6
Mesa	40	-1	7	-2	38	12	45	-1	1	0	37	-6
Racine	55	6††	0	0	32	0	56	3	0	0	38	2
Santa Fe	46	-1	1	1	41	8	46	3	0	0	45	-3
Districts that rank schools by achievement and serve fewer than all elementaries												
Charlotte	43	-1	7	-1	31	-7††	47	-1	0	0	37	-9
Winston-Salem	48	1	1	1	33	-1	51	3	0	0	40	0
Districts that rank schools primarily by poverty												
Berkeley County	51	4	9	2	42	2	58	0	0	0	41	-4
Boston	46	6	1	-2	30	3	45	-3	5	4	35	3
Houston	51	0	8	-2	53	-5	56	0	1	0	64	2
Districts making primarily intra-school changes												
Alum Rock	46	3	1	-8†	26	-1	53	6	0	-1	35	5
Yonkers	36	-10	12	-4	29	3	55	5	3	3	39	-11

*Newport is excluded from analyses that depend on the classroom activities log (CAL) because the sample of students receiving language arts instruction was too small to permit reliable estimates.

†Change is significant at the .05 level.

††Change is significant at the .05 level, but occurs systemwide (for the non-Title I group as well).

TABLE D-40

CHANGES IN LENGTH OF COMPENSATORY LANGUAGE ARTS CLASSES
IN THE DEMONSTRATION DISTRICTS*

DISTRICT/CRITERIA	LENGTH (IN MINUTES) 1975-76	LENGTH (IN MINUTES) 1976-77	CHANGE
Districts which serve low-achieving students in all elementary schools			
Adams County #12	37	36	-1
Harrison County	33	31	-2**
Mesa	56	49	-7
Racine	41	37	-4**
Santa Fe	36	30	-6**
Districts that rank schools by achievement and serve fewer than all elementaries			
Charlotte	37	35	-2**
Winston-Salem	42	43	1
Districts that rank schools primarily by poverty			
Berkeley County	40	32	-8**
Boston	44	43	-1**
Houston	36	39	3**
Districts making primarily intra-school changes			
Alum Rock	NA	(30)	--
Yonkers	40	40	0

*Newport is excluded from analyses that depend on the Classroom Activities Log (CAL) because the sample of students receiving language arts instruction was too small to permit reliable estimates

**The change is significant at the .05 level.

TABLE D-41

CHANGE IN AVERAGE NUMBER OF MINUTES OF REGULAR LANGUAGE ARTS INSTRUCTION FOR THE THIRTEEN DEMONSTRATION DISTRICTS*

DISTRICT/CRITERIA	TITLE I STUDENTS			NON-TITLE I STUDENTS		
	1975-76**	1976-77***	Change	1975-76	1976-77	Change
Districts that serve low-achieving students in all elementary schools						
Adams County #12	109	117	8	119	131	12
Harrison County	120	117	-3	130	130	0
Mesa	96	116	20++	109	123	14
Racine	112	124	12	129	136	7
Santa Fe	111	107	-4	109	119	10
Districts that rank schools by achievement and serve fewer than all elementaries						
Charlotte	97	94	-3	110	111	1
Winston-Salem	112	124	12++	137	143	6
Districts that rank schools primarily by poverty						
Berkeley County	111	141	30+	143	148	5
Boston	90	106	16	106	108	2
Houston	122	145	23+	145	153	8
Districts making primarily intra-school changes						
Alum Rock	68	95	27+	100	114	14
Yonkers	67	103	36++	109	133	24

*Newport is excluded from analyses that depend on the Classroom Activities Log (CAL) because the sample of students receiving language arts instruction was too small to permit reliable estimates.

**N = 400.

***N = 658.

+Change is significant at the .05 level.

++Change is significant at the .05 level, but occurs systemwide (for the non-Title I group as well).

TABLE D-42

CHANGE IN AVERAGE NUMBER OF MINUTES OF TOTAL LANGUAGE ARTS INSTRUCTION FOR THE THIRTEEN DEMONSTRATION DISTRICTS*

DISTRICT/CRITERIA	TITLE I STUDENTS			NON-TITLE I STUDENTS		
	1975-76**	1976-77***	Change	1975-76	1976-77	Change
Districts that serve low-achieving students in all elementary schools						
Adams County #12	137	144	7	121	132	11
Harrison County	148	147	-1	131	130	-1
Mesa	132	138	6	110	125	15
Racine	146	147	2	131	138	7
Santa Fe	138	131	-7	110	119	9
Districts that rank schools by achievement and serve fewer than all elementaries						
Charlotte	132	121	-11†	112	111	-1
Winston-Salem	153	165	12++	138	144	6
Districts that rank schools primarily by poverty						
Berkeley County	146	167	21	145	150	5
Boston	131	140	9	109	111	2
Houston	160	179	19+	148	155	7
Districts making primarily intra-school changes						
Alum Rock	109	126	17	107	117	10
Yonkers	97	136	39++	110	140	30

*Newport is excluded from analyses that depend on the Classroom Activities Log (CAL) because the sample of students receiving language arts instruction was too small to permit reliable estimates.

**N = 400 for Title I and 2520 for non-Title I.

***N = 658 for Title I and 1894 for non-Title I.

+Change is significant at the .05 level.

++Change is significant at the .05 level, but occurs systemwide (for the non-Title I group as well).

TABLE D-43

PROPORTION OF TIME TITLE I STUDENTS SPENT IN INSTRUCTIONAL GROUPS OF VARIOUS SIZES IN THEIR REGULAR LANGUAGE ARTS CLASSES*

DISTRICT/CRITERIA	INDIVIDUAL			SMALL (2-5)			MEDIUM (6-20)			LARGE (20+)		
	1975-76**	1976-77***	Change	1975-76	1976-77	Change	1975-76	1976-77	Change	1975-76	1976-77	Change
Districts that serve low-achieving students in all elementary schools												
Adams County #12	21	12	-10	13	17	4	30	30	0	36	42	6
Harrison County	7	7	0	9	6	-3	34	43	9	51	45	-6
Mesa	13	21	8	16	12	-4	19	17	-2	52	49	-3
Racine	8	6	-2	4	5	1	43	34	-9	45	55	10
Santa Fe	18	16	-2	25	31	6	39	29	-10	17	24	7
Districts that rank schools by achievement and serve fewer than all elementaries												
Charlotte	13	16	3	16	9	-7	39	31	-8	31	43	12
Winston-Salem	8	6	-2	7	6	-1	48	43	-5	38	45	7
Districts that rank schools primarily by poverty												
Berkeley County	12	2	-10	19	1	-18	15	55	40	55	43	-12
Boston	13	24	11	17	12	-5	46	19	-27	24	45	-21
Houston	8	5	-2	11	7	-4	35	49	14	48	39	-9
Districts making primarily intra-school changes												
Alum Rock	42	14	-28	16	8	-8	28	40	12	15	38	23
Yonkers	19	20	1	13	14	1	10	27	17	58	39	-19

*Newport is excluded from analyses that depend on the Classroom Activities Log (CAL) because the sample of students receiving language arts instruction was too small to permit reliable estimates.

**N = 400.

***N = 658.

TABLE D-44

PROPORTION OF TIME TITLE I STUDENTS SPENT WITH DIFFERENT TYPES OF INSTRUCTORS IN REGULAR LANGUAGE ARTS INSTRUCTION*

DISTRICT/CRITERIA	PROFESSIONAL			INSTRUCTIONAL SPECIALIST			PARAPROFESSIONAL			NO INSTRUCTOR		
	1975-76**	1976-77***	Change	1975-76	1976-77	Change	1975-76	1976-77	Change	1975-76	1976-77	Change
Districts that serve low-achieving students in all elementary schools												
Adams County #12	65	74	9	0	1	1	2	3	1	34	22	-12
Harrison County	81	90	9	1	0	-1	3	0	-3	14	10	-4
Mesa	75	65	-10	2	2	0	4	7	3	19	26	7
Racine	85	85	0	1	2	1	3	2	-1	11	11	0
Santa Fe	62	62	0	2	2	0	12	12	0	35	24	-1
Districts that rank schools by achievement and serve fewer than all elementaries												
Charlotte	74	77	3	6	2	-4	5	3	-2	16	18	2
Winston-Salem	78	77	-1	2	3	1	2	2	0	19	19	0
Districts that rank schools primarily by poverty												
Berkeley County	86	88	2	1	1	0	1	2	1	12	9	-3
Boston	78	62	-16	2	7	5	2	10	8	17	20	3
Houston	84	77	-7	1	2	1	3	4	1	11	16	5
Districts making primarily intra-school changes												
Alum Rock	51	60	9	1	2	1	13	9	-4	35	29	-6
Yonkers	54	69	15	0	5	5	0	4	4	46	22	-24

*Newport is excluded from analyses that depend on the Classroom Activities Log (CAL) because the sample of students receiving language arts instruction was too small to permit reliable estimates.

**N = 400.

***N = 658.

SITE-BY-SITE INTERPRETATION OF
TABLES D-13 THROUGH D-38

ADAMS COUNTY #12

Title I students in Adams County #12 received the same amount of compensatory language arts instruction per day in 1976-77 as in 1975-76. There was also no difference between the amount of instruction received in 1976-77 by Title I students in old and new Title I schools.

With respect to regular language arts, Title I students gained eight minutes of instruction, a non-significant increase. While the gain is larger in old Title I schools (13 minutes), non-Title I students also gained 12 minutes, so the change is not due to Demonstration changes alone.

As for the school day, Title I students gained an average of 13 minutes, whereas the non-Title I group lost 14 minutes. The Title I/non-Title I difference in amount of change is 27 minutes, a statistically significant amount. This difference is composed of an approximately 12-minute difference in instructional time, and a 15-minute difference in non-instructional time. Title I students gained in regular language arts and science/social studies.

With respect to compensatory language arts instruction, Title I students received proportionately more small group instruction in 1976-77 (25%) and less medium group instruction (25%) than in 1975-76. There were also slight shifts in type of instructor, with proportionately more services being delivered by specialists (10% gain) and less by paraprofessionals (9% loss).

Proportionately more regular language arts instruction was delivered by professionals (9% gain) while less was offered in individualized settings (10% loss).

However, some of the differences in grouping or adult involved patterns for regular language arts were significant.

In summary, Title I students in Adams County #12 received the same amount of compensatory language arts instruction before and after the implementation of waivers. There was a shift toward smaller grouping patterns and away from medium sized groups. Slight shifts in type of instructor were in the direction of more professional/specialist attention and less paraprofessional help or no adult involved.

ALUM ROCK

Title I students in Alum Rock lost an average of ten minutes of compensatory language arts instruction, but gained an average of 27 minutes of regular language arts instruction for a net gain of 17 minutes. Non-Title I students gained a smaller amount of regular language arts (about 14 minutes). This resulted in Title I students in the Demonstration receiving less regular but more total (regular plus compensatory) language arts instruction than non-Title I students.

The length of the school day remained fairly constant for Title I students and lengthened slightly (by 13 minutes) for non-Title I students. On the other hand, the instructional day for Title I students was shortened by an average of 14 minutes. This is reflected in losses in compensatory language arts, compensatory mathematics, and other subjects such as fine arts, cultural activities, and physical education.

In addition to receiving less compensatory language arts instruction in 1976-77, Title I students also received 12% less of this instruction in small groups. There was also a 14% decrease in the proportion of compensatory language arts delivered by professionals and a 19% increase in the proportion delivered by instructional specialists.

While Title I children gained 27 minutes in regular language arts the mode of instruction was changed so that 78% was delivered in medium or large groups during the Demonstration compared with only 43% prior to the Demonstration. Most of the additional instruction was delivered by professionals.

In summary, Title I children in Alum Rock lost compensatory but gained regular instruction for an overall gain in language arts instruction. Both types of language arts instruction were offered in larger groups during the Demonstration than previously.

BERKELEY COUNTY

Title I students in Berkeley County lost an average of nine minutes of compensatory language arts instruction, but gained a substantial amount of regular classroom instruction in the same subject (30 minutes). Both of these changes are statistically significant, and lead to an approximate 21 minute increase in the total amount of language arts services delivered to Title I children. Non-Title I students showed little change, gaining about five minutes of regular classroom language arts instruction.

The length of the school day for Title I children in Berkeley County was extended by an average of 28 minutes (a statistically significant amount) during the Demonstration. This was not paralleled by a corresponding increase for non-Title I children and thus acted to equalize the school day for the two groups of students; there had been a 25 minute discrepancy in favor of non-Title I children prior to the Demonstration. A similar pattern can be seen with respect to the instructional day. Prior to the Demonstration, Title I children had a shorter instructional day than non-Title I children (by nine minutes). However, in the Demonstration, an average of 24 minutes was added to their instructional day, giving Title I students a somewhat longer instructional day (by about 12 minutes) than non-Title I students whose instructional day remained fairly constant. The increase in the amount of regular language arts received by Title I students was responsible for most of the increase in the length of the instructional day.

In spite of the fact that there was an increase in the amount of regular language arts and a decrease in the amount of compensatory language arts instruction received by Title I students, the grouping patterns in which both types of language arts were delivered changed in similar ways. That is, the proportion of instruction delivered in medium-sized groups increased

substantially (40% for regular language arts and 35% for compensatory language arts), while the proportion of instruction delivered in all other group sizes decreased.

There was little change in the proportion of regular language arts delivered to Title I students by various types of instructors; in both years the great majority (about 87%) was delivered by professionals. On the other hand, there was a change in the proportion of compensatory language arts instruction delivered by different instructors: instructional specialists taught a larger proportion of compensatory language arts (14% more) while paraprofessionals taught about 14% less.

In summary, Title I students in Berkeley County lost compensatory but gained regular classroom instruction, resulting in a net gain of 21 minutes of language arts instruction: a statistically significant change not paralleled by a change for non-Title I students. The proportion of language arts instruction (both compensatory and regular) delivered in medium-sized groups increased substantially.

BOSTON*

Title I students in Boston received an average of seven minutes less instruction in compensatory language arts but gained an average of 16 minutes in regular classroom language arts instruction, leading to a net gain of about nine minutes per day. As a result, Title I children in the Demonstration received about the same amount of regular language arts as non-Title I children (they had been receiving less prior to the Demonstration) and, consequently, more total language arts instruction.

The school day for Title I children increased by about eight minutes compared with a 14 minute increase for non-Title I children. The instructional day increased by about ten minutes for both groups of students.

The seven minute loss for Title I children in compensatory language arts occurred completely within instruction delivered by instructional specialists in small groups. The proportion of compensatory language arts delivered in these two modes decreased by approximately 15% while the proportion delivered in medium-sized groups and individualized settings, and the proportion delivered by professionals or without an instructor all increased on the order of seven to ten percent. The increase in absolute amount of regular language arts for Title I children is reflected by increases in the amount of large group (21%) and individualized (11%) instruction and decreases in the usage of medium (27%) groups.

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* Data on student instructional experiences were collected in all Title I schools prior to the Demonstration, but only in a subsample of Title I schools during the Demonstration. The subsample was restricted to those schools which received Title I funds for the first time as a result of the Demonstration--a procedure we employed because of budgetary constraints. We expect that few changes in the instructional experiences received by Title I students in schools that already had funds occurred as a result of the Demonstration. It is the schools which received funds as a result of the Demonstration that are of interest.

In summary, Title I students in Boston lost compensatory but gained regular classroom language arts instruction, leading to a total which exceeded that of non-Title I students. Because of the restricted sample for 1976-77, however, these results should be interpreted with caution.

CHARLOTTE

There was a statistically significant decrease (eight minutes) in the amount of time Title I students spent in compensatory language arts. In 1976-77, there was no difference in the amount of compensatory language arts received by Title I students in old Title I schools versus Title I students in new Title I schools. There were only small differences in the amount of regular language arts instruction received by Title I and non-Title I students.

With regard to total language arts (regular plus compensatory), Title I students received 11 minutes less instruction in 1976-77, while the amount of this type of instruction delivered to non-Title I students did not change. Even with this decrease, Title I students in the Demonstration received more total language arts (by 11 minutes) than non-Title I students.

Both the school day and the instructional day were a good deal shorter in 1976-77 for Title I and non-Title I students. The change in instructional day for Title I students was approximately 29 minutes; for non-Title I students, the change was approximately 27 minutes.

Further investigation of the changes in compensatory language arts reveals that a greater proportion of compensatory language arts was delivered in medium-sized and a smaller proportion in small-sized groups in 1976-77 than in 1975-76 (about an eight percent change in both cases).

For teacher type, there were decreases in the use of instructional specialists (seven percent) and paraprofessionals (six percent) in 1976-77. These were accompanied by a 13% increase in the use of professionals (classroom teachers).

Further investigation of the changes in regular language arts reveals that there were no appreciable differences in the proportion of regular language arts instruction delivered

in different group sizes over the two years of the Demonstration for non-Title I students. For Title I students there were significant decreases in small and medium group instruction (seven and nine percent respectively) accompanied by a significant increase in large group instruction.

For teacher type, there was a small change in the use of instructional specialists. Although statistically significant, this is not of sufficient magnitude to discuss here.

In summary, Title I students in Charlotte received less compensatory and the same amount of regular language arts in 1976-77 as in 1975-76. Even so, they still received an average of ten minutes more total language arts instruction than non-Title I students in 1976-77.

HARRISON COUNTY

Title I students in Harrison County received about the same amount of compensatory and regular language arts instruction in 1976-77 as they did in 1975-76. Likewise, non-Title I students received the same amount of regular language arts in the two years. This lack of change means that Title I students retained their roughly 17 minute advantage of total language arts across the two years.

Neither the school day nor the instructional day changed appreciably across years for either Title I or non-Title I children.

There were few changes in the mode of delivery of compensatory language arts other than an eight percent loss in small group instruction. With respect to regular language arts, there were nine percent gains both in instruction delivered in medium sized groups and in instruction delivered by professionals.

In summary, few changes were observed in any portion of the day for Title I or non-Title I students in Harrison County. Across the two years of study, Title I children received about 17 minutes more total language arts instruction than their non-Title I counterparts.

HOUSTON

With respect to compensatory language arts, Title I students in 1976-77 lost an average of four minutes of instruction (from 38 to 34).

In regular language arts instruction, Title I students gained an average 23 minutes (from 122 to 145). Non-Title I students gained eight minutes on the average (from 145 to 153). The gain for Title I students, however, may be said to be over and above that for non-Title I students; it is not merely a systemic change. (Nor is it a function of school shifts per se.) The overall Title I gain is relatively consistent across school types, although in both years Title I children in the hold harmless schools received less regular language arts instruction than Title I children in other schools.

Therefore, Title I students lost four minutes of compensatory language arts instruction and gained 23 minutes of regular language arts instruction, for a net gain of approximately 19 minutes. In contrast, non-Title I students gained eight minutes of regular language arts instruction. Thus, Title I students gained approximately 11 minutes of language arts instruction over their non-Title I counterparts, leading to a 25 minute advantage in 1976-77 as opposed to 11 minutes in 1975-76.

There were no changes for either Title I or non-Title I students with respect to length of the school day. Nor were there shifts for Title I/non-Title I students in the length of the instructional day.

For compensatory language arts, there was no shift in grouping patterns across years. For regular language arts, there was a statistically significant shift away from the use of large and small groups (nine and four percent respectively) for Title I students. In contrast, instruction in medium-sized groups increased by 14%. A comparable shift was not found in the non-Title I group which remained constant.

In summary, Title I students in Houston lost a small (four minutes) but statistically significant amount of compensatory language arts but gained a large (23 minutes) and significant amount of regular classroom language arts instruction. Added to a pre-Demonstration advantage of 11 minutes, this led to an advantage of 25 minutes for Title I students in total language arts.

Title I students in 1976-77 received 15 minutes less compensatory language arts instruction, a statistically significant decrease from the amount they received in 1975-76. Title I students in both old and new schools received the same amount of such instruction in 1976-77.

With respect to regular language arts, Title I students gained 20 minutes of instruction in 1976-77, a significant increase, while non-Title I students gained 14 minutes. The fact that both groups gained in regular language arts suggests a system-wide change in instructional focus. The fact that Title I students gained somewhat more than non-Title I suggests a possible Demonstration effect, probably in part a compensation for the loss in compensatory services.

The net gain for Title I students in language arts instruction was five minutes because the gain in regular instruction outweighed the loss in compensatory. Given that non-Title I students gained 14 minutes, the Title I group suffered a relative loss of nine minutes vis-a-vis their non-Title I counterparts. Even with this loss, Title I students still received an average of 12 minutes more total language arts instruction than non-Title I students.

The length of the school day declined about ten minutes for both Title I and non-Title I children. The instructional day declined by approximately four minutes for Title I and 11 minutes for non-Title I students.

There were no changes either in group size or adult involvement accompanying the loss in minutes of compensatory language arts instruction.

With respect to regular language arts, there was no shift in grouping patterns, but a shift in adult involvement

occurred. The amount of time Title I students spent with professionals decreased by approximately ten percent, whereas for the non-Title I group it increased by approximately five percent. In contrast, for the Title I group, time spent with no adult involved increased by seven percent vis-a-vis a six percent decrease for the non-Title I group.

In summary, Title I children in Mesa lost 15 minutes of compensatory but gained 20 minutes of regular classroom language arts instruction, leading to a net gain of five minutes when the two are combined. Although non-Title I students gained 14 minutes of regular language arts, Title I students still received more total language arts instruction (ten minutes) than their non-Title I counterparts.

NEWPORT

There was a statistically significant increase (12 minutes) in the amount of time Title I students spent in compensatory language arts from 1975-76 to 1976-77. This change appears to be due to the Demonstration and represents a four percent increase in the amount of the instructional day devoted to this activity. Students in the new Title I schools received approximately five minutes more compensatory language arts. This difference contributes heavily to the overall change for Title I over the two years.

There are non-significant decreases in the amount of regular language arts instruction received by both Title I students (six minutes) and non-Title I students (seven minutes). None of these differences appear to be attributable to the Demonstration. However, with regard to Title I schools in 1976-77 there are differences in students served by school type. The smaller mean for Title I students in new Title I schools contributed heavily to the difference for the total Title I sample over the two years.

With regard to total langauge arts, there is an increase of six minutes per day for Title I students and a decrease of seven minutes for the non-Title I group. In 1976-77 the Title I student received 140 minutes of language arts instruction per day as compared with 129 minutes for their non-Title I counterparts. Because there were some shifts in the instructional day for both groups (see below) the changes in proportion of time devoted to language arts were small.

Small differences were observed in the length of the school day and the instructional day. Both were longer for the Title I group (ten minutes and 14 minutes for the school and instructional day respectively) while remaining relatively unchanged for the non-Title I group.

Further investigation of the changes in compensatory language arts reveals that there was an increase in the proportion of time spent in individualized (17 percent) and a decrease in small group (17 percent) instruction. All compensatory language arts instruction for both years was provided in individualized or small group settings.

The changes with respect to type of instructor were also not large. There were small increases in the use of professionals (nine percent) and paraprofessionals (eight percent) to deliver compensatory language arts and a decrease (17%) in the use of instructional specialists.

Shifts in group size occured in regular language arts: from large group (37% decrease) to individual (eight percent increase) and medium size (27% increase) groups for Title I students. Despite these shifts the majority of the language arts instruction was delivered in medium and large groups for both Title I and non-Title I students in both years of the Demonstration research. For type of instructor the shifts in proportions were quite small.

In summary, Title I students in Newport gained 12 minutes of compensatory and lost six minutes of regular language arts. Non-Title I students also lost regular language arts instruction (seven minutes), leading to a 13 minute advantage for Title I students in total languate arts. Prior to the Demonstration both Title I and non-Title I students received the same amount of total language arts instruction.

RACINE

Title I students in Racine lost an average of nine minutes (statistically significant) of compensatory language arts instruction, but gained an average of 12 minutes (not significant) of regular language arts. Non-Title I students also gained regular language arts instruction (seven minutes). Title I students in the Demonstration thus received 13 minutes more total (regular plus compensatory) language arts instruction than non-Title I students, about the same differential as was observed prior to the Demonstration. There was no difference between Title I students in old and new schools on compensatory language arts; however, Title I students in old schools received more regular language arts instruction than Title I students in new schools.

The length of both the school day and the instructional day remained relatively constant for Title I and non-Title I children.

In addition to receiving less compensatory language arts instruction in 1976-77 Title I students also received 12% less of their instruction in small groups while receiving 11% more individualized instruction. No changes were observed in the proportion of compensatory language arts delivered by different types of instructors.

In summary, Title I students in Racine lost nine minutes of compensatory but gained 12 minutes of regular language arts. Non-Title I students gained seven minutes of regular language arts. In terms of total language arts, Title I students received 13 minutes more than non-Title I students (both groups of students received the same amount of total language arts prior to the Demonstration).

SANTA FE

Santa Fe Title I students lost a small amount (about three minutes) of compensatory language arts instruction in 1976-77. The small loss was consistent for Title I students in both old and new schools. With respect to regular language arts, Title I students lost four minutes while non-Title I students gained ten minutes. Combining compensatory and regular language arts leads to the observation that Title I students lost a total of 17 minutes of language arts instruction vis-a-vis non-Title I children, reducing their advantage from 28 minutes in 1975-76 to 12 minutes in 1976-77.

The school day for Title I students was shortened by 26 minutes, the instructional day by 20 minutes. On the other hand, non-Title I students only lost eight and two minutes respectively.

There were no sizable changes in the proportion of compensatory or regular language arts delivered to Title I students in various size groups. The same conclusion holds with respect to the proportion of compensatory and regular language arts delivered to Title I students by different types of instructors.

In summary, Title I students in Santa Fe lost small amounts of both compensatory and regular language arts while non-Title I students gained ten minutes of regular instruction. These two factors combined to reduce the 1975-76 Title I/non-Title I difference in total language arts from 28 minutes (favoring Title I) to 12 minutes (favoring Title I).

WINSTON-SALEM

There was no change in the amount of compensatory language arts instruction provided to Title I students from 1975-76 to 1976-77. Title I students did, however, gain an average of 12 minutes of regular language arts. Non-Title I students gained an average of six minutes. Thus, in both 1975-76 and 1976-77, Title I students received more total language arts than non-Title I students.

There were no differences by school type between the amount of regular language arts delivered to Title I students across the two years. However, Title I students in old schools received more compensatory language arts instruction in each year than Title I students in other schools.

No large differences in the length of the school or instructional days were observed for either Title I or non-Title I students.

Although the amount of compensatory language arts services delivered to Title I students did not change from 1975-76 to 1976-77, the proportion of such instruction was altered so that small groups were more often utilized (eight percent gain) while less instruction was delivered in medium sized groups (nine percent loss). Also, there was an 11 percent gain in the amount of instruction offered by professionals and a 13% decline in that offered by specialists.

No differences were observed in the proportion of regular language arts instruction delivered by various types of instructors or in various group sizes.

In summary, the amount of compensatory language arts delivered to Title I students in Winston-Salem remained unchanged from 1975-76 to 1976-77. Both Title I and non-Title I students gained regular language arts (12 and seven minutes respectively). In both years, Title I students received substantially more total language arts instruction than non-Title I children.

YONKERS

Title I students in Yonkers gained a small amount of compensatory language arts (three minutes) from 1975-76 to 1976-77 and gained a large (and statistically significant) amount of instruction in regular language arts (36 minutes). However, non-Title I students also gained a large amount of regular language arts (24 minutes). These changes altered the amount of total language arts delivered so that Title I students in the Demonstration received the same amount as non-Title I students. Prior to the Demonstration there was an 14 minute differential in favor of non-Title I students.

While the school day and instructional day remained constant for Title I students, the former increased by eight minutes and the latter by 16 minutes for non-Title I students. To compensate for the large increase in regular language arts, Title I students appear to have lost services in regular classroom mathematics (10 minutes) and in such non-academic services as physical education and fine arts (21 minutes).

Title I students received more compensatory language arts services in individualized settings (14% gain) and in medium sized groups (37% gain) but less in small groups (54% loss). More of the same services were delivered by specialists (21% gain) and fewer took place with no adult involved (16% loss).

Changes in mode of delivery also occurred for regular language arts. Title I students were more often served in medium sized groups (17% gain) and less often in large groups (19% loss). There was a 15% gain in proportion of services delivered by professionals and a 24% drop in unsupervised activity.

In summary, Title I students in Yonkers gained four minutes of compensatory and 36 minutes of regular language arts. Non-Title I students gained 24 minutes of regular language arts instruction. The two groups of students received about the same

amount of total language arts in the Demonstration--a change in that prior to the Demonstration non-Title I students enjoyed a 14 minute advantage.

APPENDIX E

STATEMENT OF

DR. JAMES J. VANECKO
SENIOR SOCIAL SCIENTIST, AND
DEMONSTRATION PROJECT DIRECTOR

ABT ASSOCIATES INC.
55 WHEELER STREET
CAMBRIDGE, MASSACHUSETTS 02138

BEFORE

SUBCOMMITTEE ON ELEMENTARY, SECONDARY
AND VOCATIONAL EDUCATION
UNITED STATES HOUSE OF REPRESENTATIVES

NOVEMBER 1, 1977

STATEMENT OF
DR. JAMES J. VANECKO
SENIOR SOCIAL SCIENTIST AND
DEMONSTRATION PROJECT DIRECTOR

BEFORE

THE SUBCOMMITTEE ON ELEMENTARY, SECONDARY,
AND VOCATIONAL EDUCATION
UNITED STATES HOUSE OF REPRESENTATIVES

NOVEMBER 1, 1977

Mr. Chairman, I am very pleased to testify before this committee concerning allocation policy in the Demonstration Study Abt Associates has conducted under contract to the National Institute of Education. The interpretations and opinions I offer are my own and do not necessarily represent those of the Institute.

I am accompanied today by Dr. Francis Archambault, the Deputy Director of this study; Mr. Peter Miller, Vice President of Abt Associates for Educational Research; and Ms. Ruth Scheer, Director of Field Operations for this study. Ms. Nancy Ames, the Director of Analysis for the project, was unable to accompany us today because of the recent birth of her daughter, Jessica, but certainly is here in spirit.

The testimony I am presenting supplements the NIE report on the Demonstration Study authored by Dr. Ann Milne and presented to you on September 30, 1977. The study includes 13 districts which were granted waivers of Title I regulations in order to modify the allocation of Title I resources to schools and students within the district.

I will begin by summarizing the allocation policies and processes adopted by these districts as well as important findings in two aspects of the study.* I will then discuss these findings in more detail.

As a result of their participation in the Demonstration, districts were given the opportunity to design and implement new procedures for determining which schools and students were eligible for and received Title I. They were also given the opportunity to concentrate or deconcentrate Title I services to students and schools (i.e., they were free

*For more detailed analyses, see forthcoming report, J. Vanecko, F. Archambault, and N. Ames, ESEA Title I Allocation Policy: Demonstration Study -- Results of First Year Implementation (Cambridge, Mass.: Abt Associates Inc.)

to serve fewer (concentrate) or more (deconcentrate) schools and students than they had in the past). The thirteen districts reacted to this opportunity in a variety of ways.

All districts modified school eligibility and targeting rules, but in different ways. Six districts (see Chart #1) chose to target low-achieving students directly regardless of the schools they attended and, thus, to serve all elementary schools. These we refer to as "direct allocation" districts. Two districts chose to rank schools based on the proportion of students with low reading test scores and to target schools for service according to a procedure similar to that currently followed using poverty criteria. These we refer to as "achievement allocation." Three districts retain the current practice of targeting schools based on the proportion of students who are poor. Two of these three added schools based on the proportion of students with low test scores. Finally, two districts targeted all or almost all students in some schools and only those with low test scores in others.

It should be noted here that the selection of these options is related to district characteristics, particularly size. No large districts chose the direct allocation option, nor did any of them seriously consider this option during planning. On the average the direct allocation districts added ten schools to those already served by Title I. In the four largest districts a similar policy would mean adding an average of 54 schools per district. There is no doubt that the extension of Title I services to all schools in the larger districts would present very different administrative problems than they do in the smaller ones.

All districts chose to deconcentrate services by serving more schools and all but two by serving more students. However, there was a wide range of changes in the numbers of schools to which Title I service was extended, the numbers of students to whom Title I service was extended, and the alteration in the number of students served per school. There was also no simple uniform relationship between these changes and the results of newly adopted policies.

Chart 1

DIRECT ALLOCATION	
SIX DISTRICTS SERVE LOW ACHIEVING STUDENTS IN ALL ELEMENTARY SCHOOLS	Adams County #12, Colorado Harrison County, West Virginia Mesa, Arizona Newport, Rhode Island Racine, Wisconsin Santa Fe, New Mexico
ACHIEVEMENT ALLOCATION	
TWO DISTRICTS RANK SCHOOLS BY ACHIEVEMENT AND SERVE THOSE BELOW A CUT–OFF	Charlotte, North Carolina Winston–Salem, North Carolina
POVERTY & ACHIEVEMENT ALLOCATION	
THREE DISTRICTS RANK SCHOOLS BY POVERTY AND ADD SCHOOLS RANKED BY ACHIEVEMENT	Berkeley County, West Virginia Boston, Massachusetts Houston, Texas
STUDENT TARGETING EXPERIMENT	
TWO DISTRICTS MAKE INTRA–SCHOOL CHANGES	Alum Rock, California Yonkers, New York

Because of this and because the direct allocation option and the achievement allocation option are the clearest examples of policies under consideration by this Committee, I will focus my summary of the results on the effects of these two options.

The first group of results that I will summarize pertains to the changes in the characteristics of the students who receive Title I services, i.e., disadvantaged and those without disadvantage. Specifically, when we discuss disadvantage we compare students who are low achieving and those who are not, students from poor families and those not, and minority students and those not. Among other analyses, we have examined the proportion of students served by Title I who are disadvantaged (selectivity).

In the direct allocation districts, we found the following results, when we averaged across the six districts:

- There was an increase of 5% in the proportion of Title I students who were low achieving
- There was a decrease of 8% in the proportion of Title I students who came from poor families
- There was a zero change in the percent minority among Title I students.

The two achievement allocation sites showed results opposite from each other:

- In Charlotte, the proportion of Title I students who were low achieving, poor, and minorities all declined.
- In Winston-Salem, the proportion of Title I students who were low-achieving, poor, and minorities all increased.

The second group of results pertains to reading instruction received by Title I students. The results for the six direct allocation districts, the two achievement allocation districts, and the five others are quite similar and can be summarized as follows:

- There was generally a small decrease in the amount of time during which students receive compensatory reading instruction.

Chart 2

CHANGE IN CHARACTERISTICS OF STUDENTS SERVED BY TITLE I FOR SIX DIRECT ALLOCATION DISTRICTS

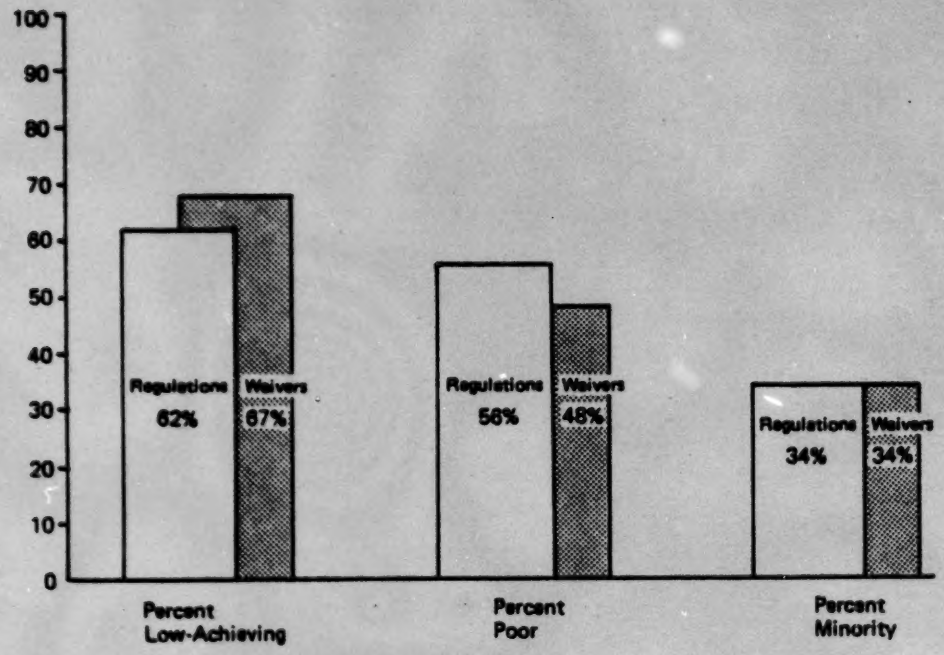
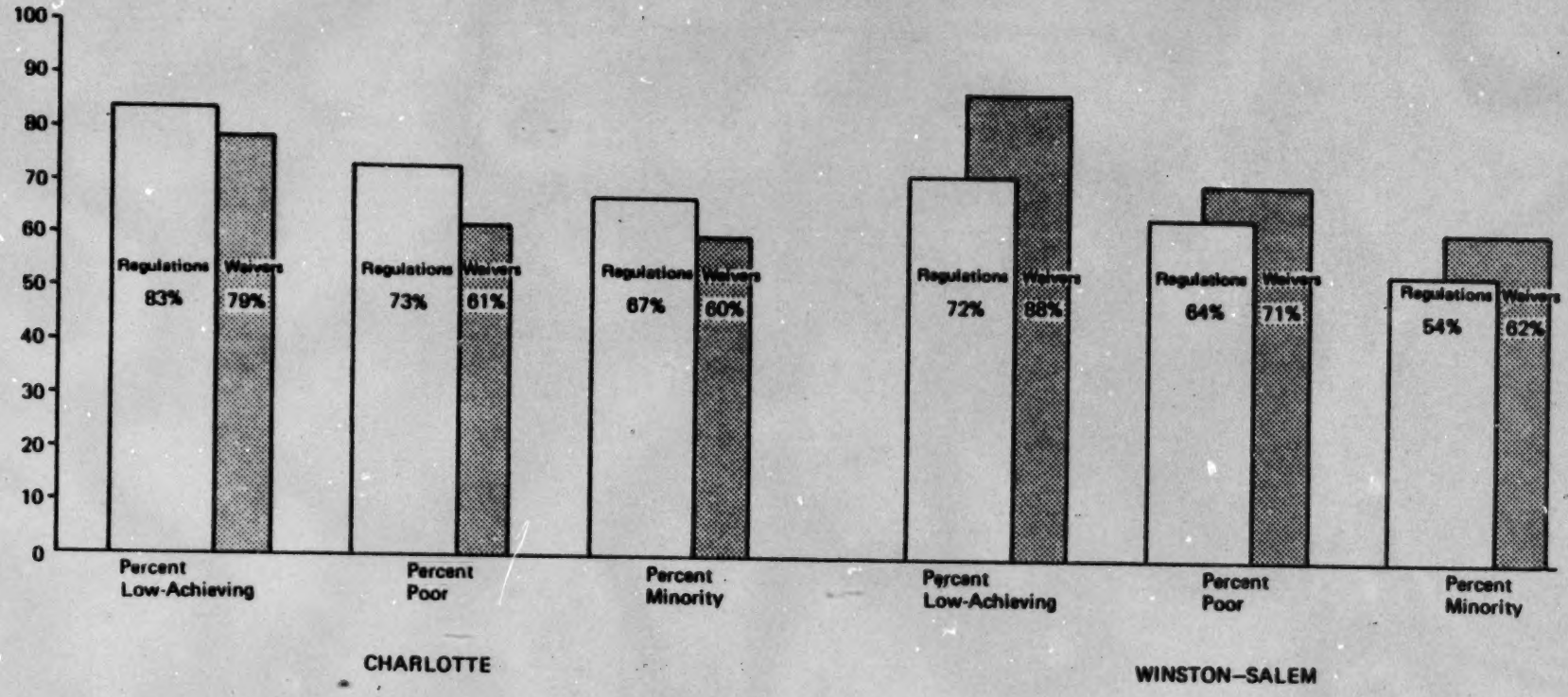


Chart 3

CHANGE IN CHARACTERISTICS OF STUDENTS SERVED BY TITLE I FOR TWO ACHIEVEMENT ALLOCATION DISTRICTS



- There was generally a concomitant and larger increase in regular reading instruction.
- Overall, Title I students gained a small amount of time in total reading instruction (compensatory plus regular).
- In addition, there were no significant changes in the quality of instruction--measured by instructional group size and the type of instructor.

This summarizes the major results. Before discussing them in more detail, I would like to comment on an issue that has frequently been raised as a problem with allocation based on achievement tests--that of disincentive. If money is allocated based on low test scores, then failure is rewarded. The extension of services under direct allocation policy does not necessarily raise the potential problem of disincentives, as does the determination of school eligibility based on achievement. However, since the direct allocation districts also tied the allocation of resources to schools based on the number of low-achieving students, schools do sometimes lose staff positions when test scores improve. Nevertheless, the evidence which we have for both groups of districts does not indicate any direct disincentive effects, but does suggest occasional morale problems. Principals sometimes express aggravation at the loss of staff.

In order to provide more detail on the results relating to the composition of the group of students served by Title I, and also of the group not served by Title I, I refer you to Chart #5. This chart describes six student groups defined by whether or not the students within them are disadvantaged, by their attendance at non-Title I or Title I schools, and finally by whether or not they are served by Title I.

The students who are disadvantaged are described in the upper portion of the chart; students who are not disadvantaged are described in the bottom portion. The size of these upper and lower portions reflects the proportion of all the students in the district who are and who are not disadvantaged. Each of these two portions are divided into three groups: those students served by Title I (#1, #4), those students in Title I schools and not served (#2, #5), and those students who are in non-Title I schools (#3, #6).

Chart 4
CHANGES IN COMPENSATORY READING FOR TITLE I STUDENTS
IN MINUTES PER DAY

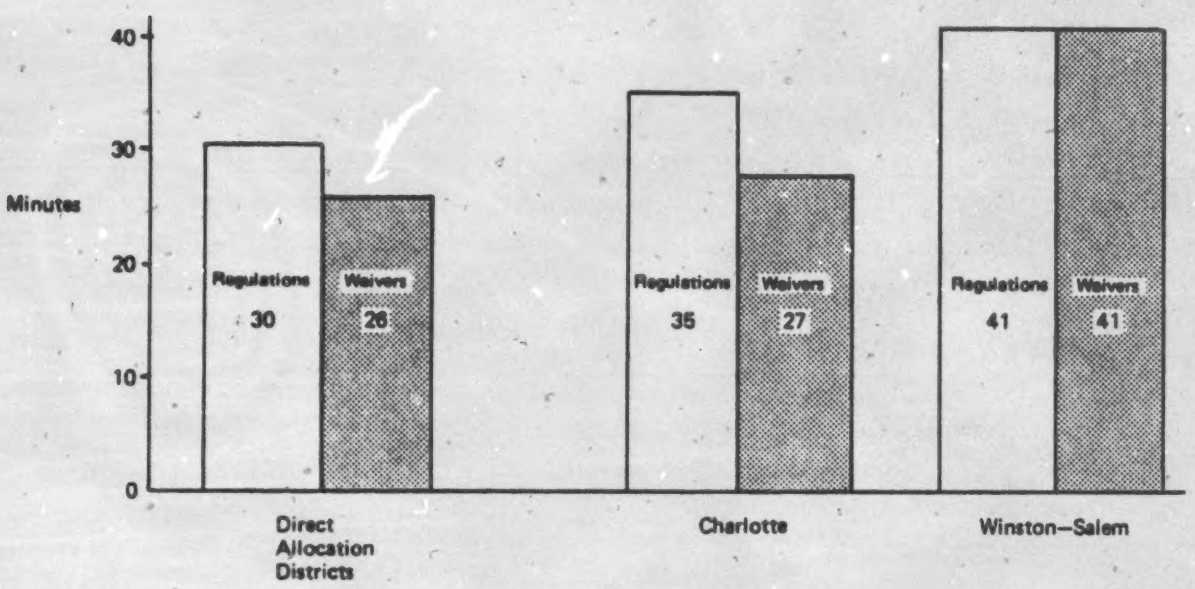
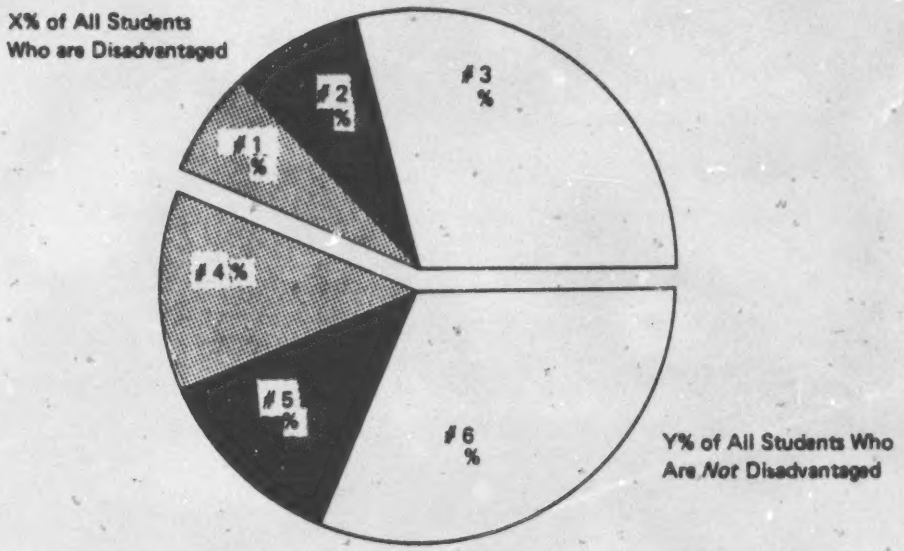


Chart 5

PIE CHART INDICATING THE DIVISION OF THE ENTIRE ELEMENTARY SCHOOL POPULATION INTO THOSE WHO ARE DISADVANTAGED AND THOSE WHO ARE NOT AND SHOWING THE ALLOCATION OF TITLE I SERVICES ACROSS THOSE GROUPS*



= Students Served by Title I

= Students in Title I Schools Who Do Not Receive Title I Services

= Students in Non-Title I Schools

* Characteristics = $\frac{\#1}{\#1 + \#4}$; Coverage = $\frac{\#1}{\#1 + \#2 + \#3}$

293

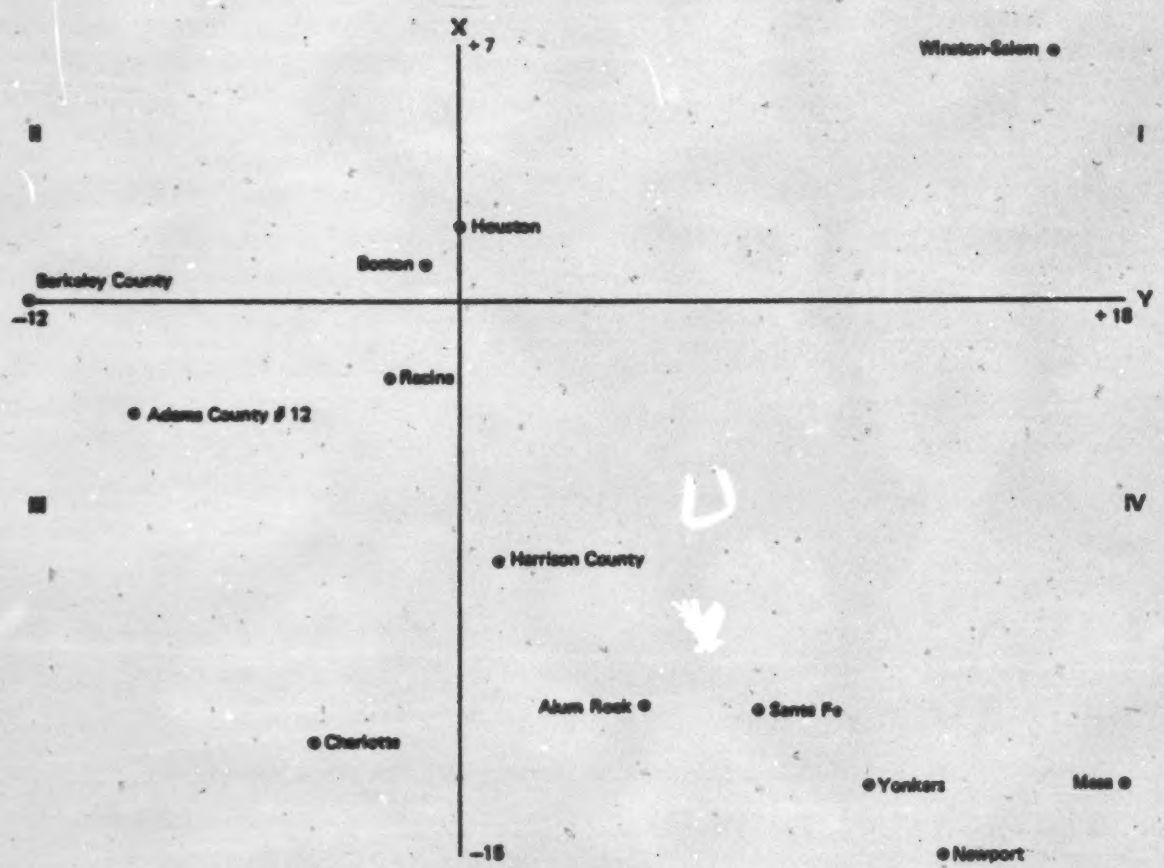
Our analyses of these student composition data followed two general approaches. First, we analyzed the coverage of disadvantaged students which Title I achieves, i.e., the proportion of all disadvantaged students served [Group #1/(Group #1 + Group #2 + Group #3)]. Second, we analyzed the characteristics of those actually served by Title I, i.e., the proportion of those served who may be classified as having a particular form of disadvantage [Group #1/(Group #1 + Group #4)]. This we refer to as "selectivity". We include three characteristics in our analysis: low achievment, poverty, and minority group membership.

Because most of the districts have chosen to extend their Title I services to more students, it may not be surprising that for each type of disadvantage the proportion of such students who receive Title I services increases. (See Appendix, Tables A-1 through A-3.) In most cases (69%), the increased coverage of disadvantaged students brought about by expanding services exceeds the increased coverage of non-disadvantaged students. By and large, disadvantaged students are being selected by the Title I program both under current regulations and under the new allocation procedures adopted by these thirteen districts. However, while the changes do generally lead to increased coverage of disadvantaged students, the selectivity of these students is not uniform for different types of disadvantage nor for different districts. This is indicated by the analysis of characteristics of students served by Title I, i.e., the proportion of the students served by Title I who are disadvantaged.

The results of the analysis of changes in student characteristics occurring because of the allocation policy changes in these districts can most easily be summarized in a simple graph plotting the changes in two of the variables, proportion of Title I students who are economically disadvantaged. Chart #6 does this. (The detailed data for this chart is in the Appendix, Table A-6.) Districts falling in the lower portion of the chart (Quadrant IV) are those which had increases in the proportion of Title I students who are educationally disadvantaged and decreases in the proportion who are economically disadvantaged. Six of the thirteen districts fall in this quadrant--

Chart 6

COMPARISON OF CHANGES IN THE PROPORTIONS OF TITLE I STUDENTS WHO ARE EDUCATIONALLY DISADVANTAGED AND WHO ARE ECONOMICALLY DISADVANTAGED



X = Change in proportion who are free lunch participants among Title I students

Y = Change in proportion who read one year or more below grade level among Title I students

Alum Rock, California; Harrison County, West Virginia; Mesa, Arizona; Newport, Rhode Island; Santa Fe, New Mexico; and Yonkers, New York. Three show decreases in both types of disadvantage, falling in Quadrant III, the lower left hand portion (Adams County #12, Colorado; Charlotte, North Carolina; and Racine, Wisconsin). Only one district shows increases in both aspects of disadvantage, and therefore falls in the upper right hand quadrant (Winston-Salem, North Carolina).

Educational disadvantage is defined here as achievement one year or more below grade level, as reported by teachers. In all but one of the districts, the majority of Title I students were educationally disadvantaged to this degree. (The average across all thirteen districts equals 65% in 1975-76 and 69% in 1976-77.) When we include students who are a half year or more below grade level, we find that, on the average, 87% of those served by Title I prior to the Demonstration were educationally disadvantaged. (See Table A-7 in the Appendix.) Under waivers, this average increased to 90%. These results indicate that for the most part the students selected to receive Title I were educationally disadvantaged students both under existing regulations and under waivers. Thus, what the majority of these districts did under the waivers was to shift to serving the most educationally disadvantaged students, i.e., the most cases of increases and the larger increases are among those students one year or more below grade level. (See Chart A-8 in the Appendix.)

The contrasting result for students who are economically disadvantaged is that the decrease in those served by Title I is fairly consistent across the districts but varies from a -2% decline to a -15% decline.

It is interesting to note that there are no districts in the upper right-hand portion of Quadrant IV. No districts significantly increased their proportion of Title I students who are educationally disadvantaged while keeping the decrease in economically disadvantaged students to a minimum.

The final point with regard to selectivity of students is that the proportion of Title I students who are minority group members changes very little. The average decline was -3%. Again though, the variation was important. The decline varied from -1% to -19%. (See Appendix, Table A-6.)

The results are obviously not uniform across the thirteen districts. It is useful to illustrate these in more detail for districts with contrasting changes. Thus, we have provided a pie chart showing the composition of student groups for three of the direct allocation sites in Quadrant IV--Harrison County, West Virginia; Santa Fe, New Mexico; and Mesa, Arizona; and for the two sites which determine eligibility of schools based on achievement tests but fall in different quadrants--Charlotte (Quadrant III) and Winston-Salem (Quadrant I), North Carolina.

Harrison County increased the proportion of Title I students who are low achieving only minimally (1%) while the concommitant decrease in those who are poor was moderate (-7%). Overall, the deconcentration of Title I extended services from 21% of all students to 28% of all students. Thus, there were expansions for all four groups served by Title I, but the expansion among students who were not low achieving equalled that for the low achieving and the expansion among those students who were not poor exceeded that for those who were poor.

Santa Fe is a case which falls into about the middle of the quadrant--with a moderate increase in the percent of Title I students who are low achieving (8%) and a moderate decrease in those who are poor (11%). The deconcentration of Title I extended services to a similar degree as in Harrison County, from 18% of all students to 24% of all students. Again, Title I services were expanded among all four groups, but the expansion among the low achieving exceeds that among those who were not. The expansion among the poor was also less than among the non-poor.

The third direct allocation site, Mesa, Arizona, is one in which the increases in the proportion low achieving (18%) and the decrease in the proportion who were poor (-13%) were both large. Mesa did not deconcentrate services across students even though they were deconcentrated across schools. Indeed, services were even more concentrated across students than previously and, thus, fewer students were served per school. In this case, there was an expansion of Title I services among the low achieving while there was a contraction of Title I services among each of the other three groups.

These three cases illustrate the manner in which changes in the characteristics of Title I students took place for the direct allocation districts, as well as the variation across districts in the patterns of change and the size of the change.

The next two sets of charts illustrate the changes in student composition for the districts which changed the eligibility criteria for schools from poverty to achievement, thus removing Title I services from some schools and initiating services in others.

Charlotte, North Carolina had decreases in the proportion of both low achieving and poor students. The deconcentration of Title I extended services from 21% to 27% of all students in the district. The extension resulted in expansion among all four groups, but the expansion among each of the groups without disadvantage was greater than that among those who were disadvantaged.

Winston-Salem exhibits the most unusual results among the Demonstration districts and presents a pattern that is the opposite of Charlotte. There were large increases in both the proportion of low achieving (16%) and poor (7%) students. Title I deconcentration extended services only slightly in Winston-Salem from 12% to 15% of all students. The expansion of services however, took place only among low achieving and poor students. There was no expansion among those who were not disadvantaged.

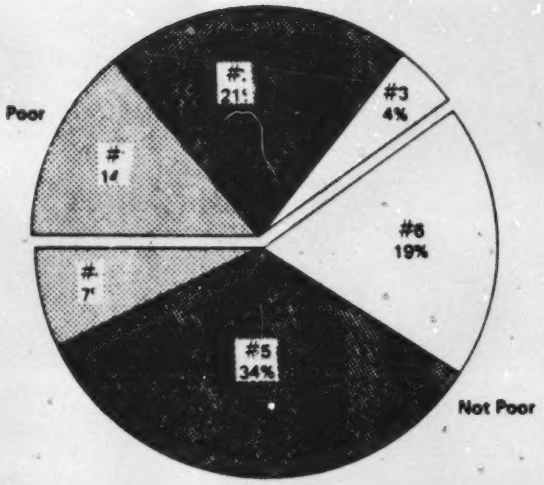
We conclude from our analysis of student characteristics that the changes in the eligibility and targeting of schools together with the distribution of resources to more schools results in smaller proportions of poor students being served. The changes in the eligibility and targeting of students per school results in a larger proportion of students who are poor readers being served. Further, it appears that in most districts similar increases in the proportion of low achieving students served could be obtained without changing school eligibility and targeting, or with very small changes in them. (See Appendix, Table A-4.)

This completes my discussion of the effects of the Demonstration on the type of students in the thirteen districts. Now, I will describe the results with regard to the instruction received by Title I students.

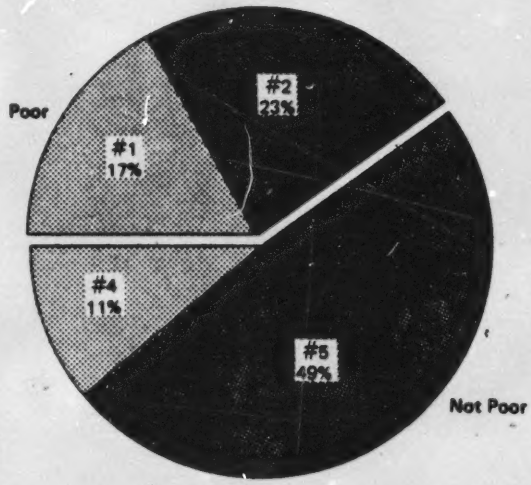
Chart 7

PIE CHART INDICATING THE DIVISION OF THE ENTIRE ELEMENTARY SCHOOL POPULATION INTO THOSE WHO ARE DISADVANTAGED AND THOSE WHO ARE NOT AND SHOWING THE ALLOCATION OF TITLE I SERVICES ACROSS THOSE GROUPS*

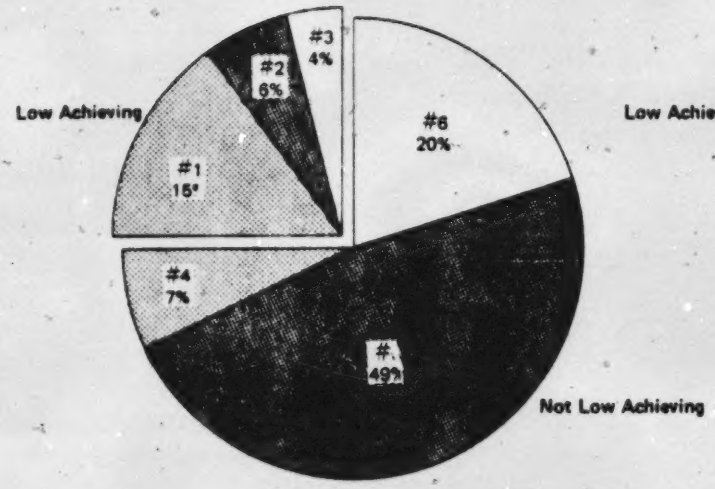
School District – Harrison County, West Virginia

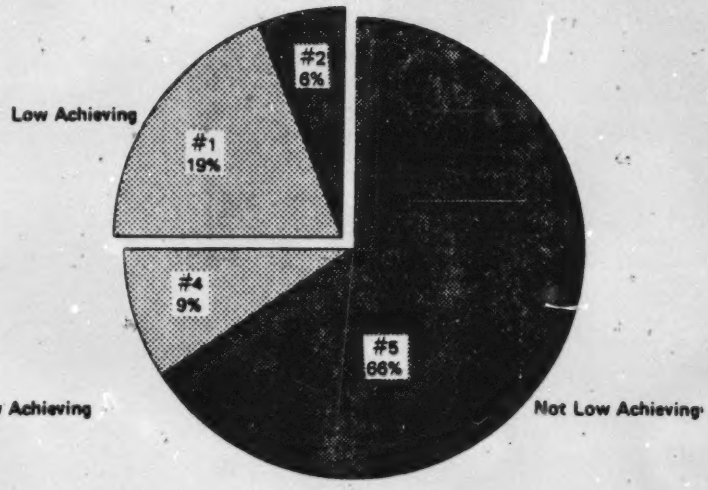


1975-1976



1976-1977





Students Served by Title I

Students in Title I Schools Who Do Not Receive Title I Services

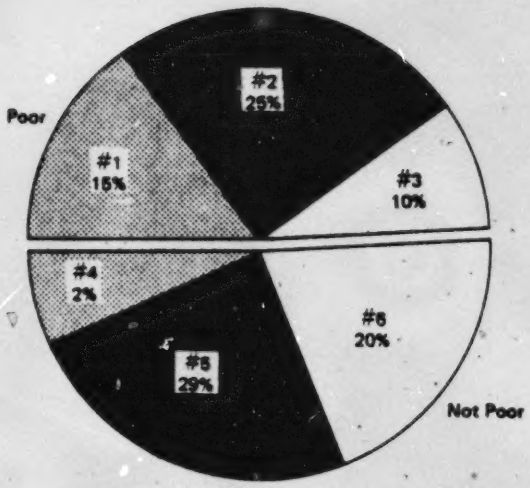
Students in Non-Title I Schools

*Characteristics = $\frac{\#1}{\#1 + \#4}$; Coverage = $\frac{\#1}{\#1 + \#2 + \#3}$

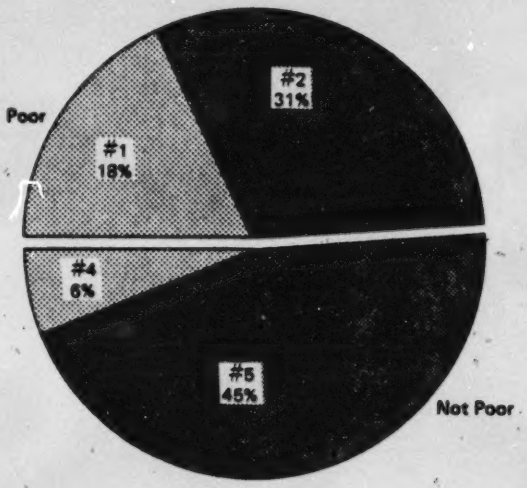
Chart 8

PIE CHART INDICATING THE DIVISION OF THE ENTIRE ELEMENTARY SCHOOL POPULATION INTO THOSE WHO ARE DISADVANTAGED AND THOSE WHO ARE NOT AND SHOWING THE ALLOCATION OF TITLE I SERVICES ACROSS THOSE GROUPS*

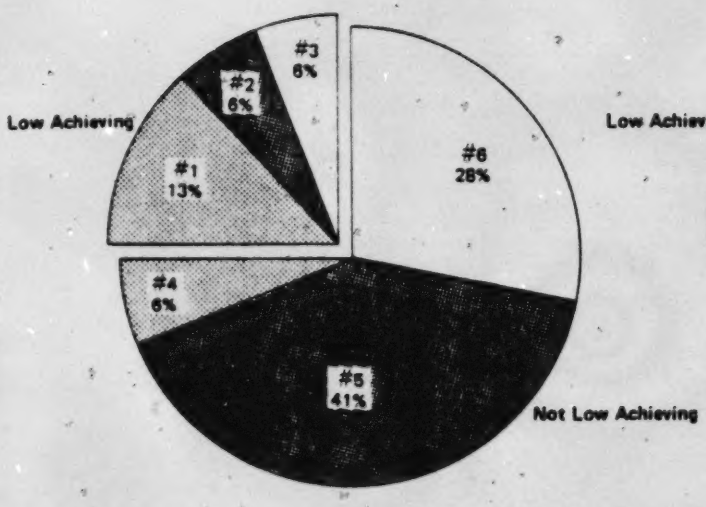
School District – Santa Fe, New Mexico

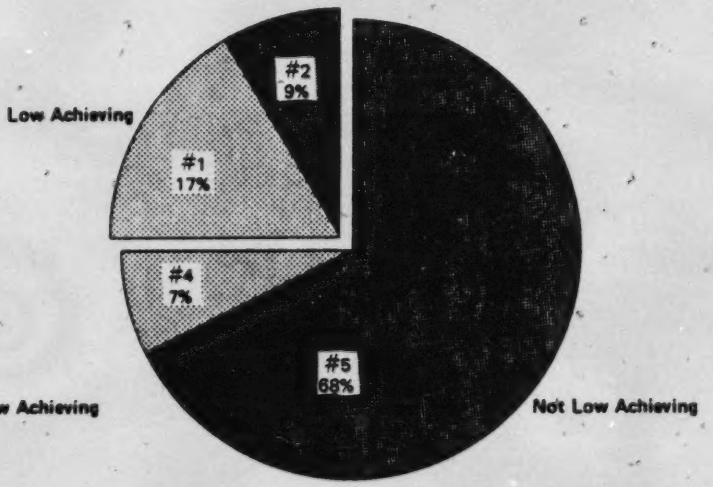


1975-1976



1976-1977





Students Served by Title I

Students in Title I Schools Who Do Not Receive Title I Services

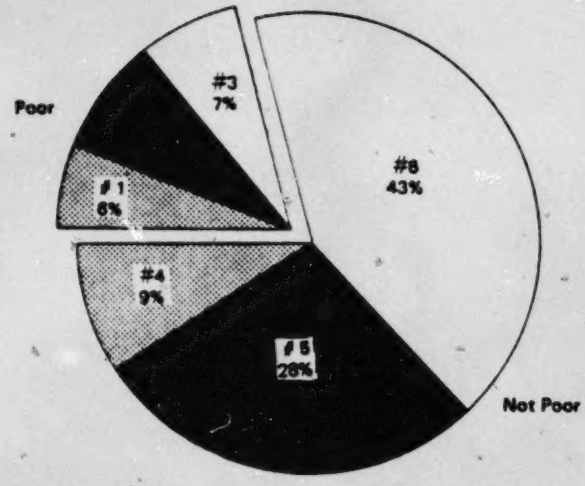
Students in Non-Title I Schools

*Characteristics = $\frac{\#1}{\#1 + \#4}$; Coverage = $\frac{\#1}{\#1 + \#2 + \#3}$

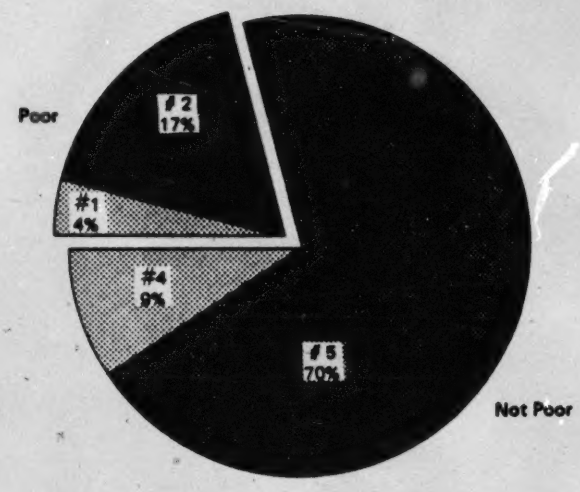
Chart 9

PIE CHART INDICATING THE DIVISION OF THE ENTIRE ELEMENTARY SCHOOL POPULATION INTO THOSE WHO ARE DISADVANTAGED AND THOSE WHO ARE NOT AND SHOWING THE ALLOCATION OF TITLE I SERVICES ACROSS THOSE GROUPS*

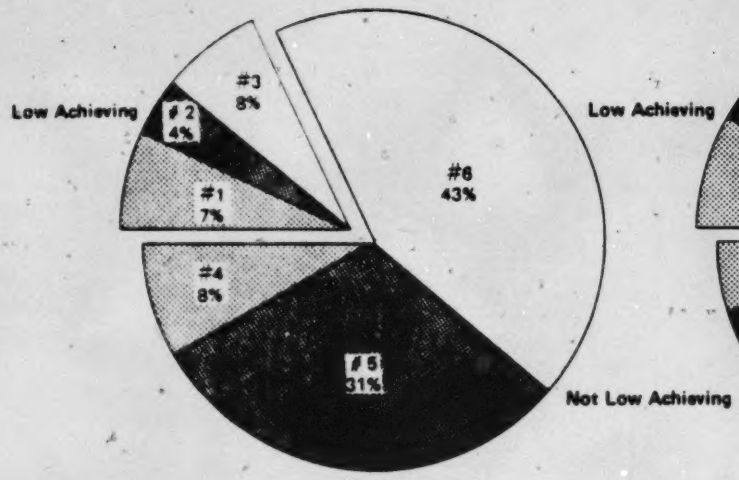
School District – Mesa, Arizona

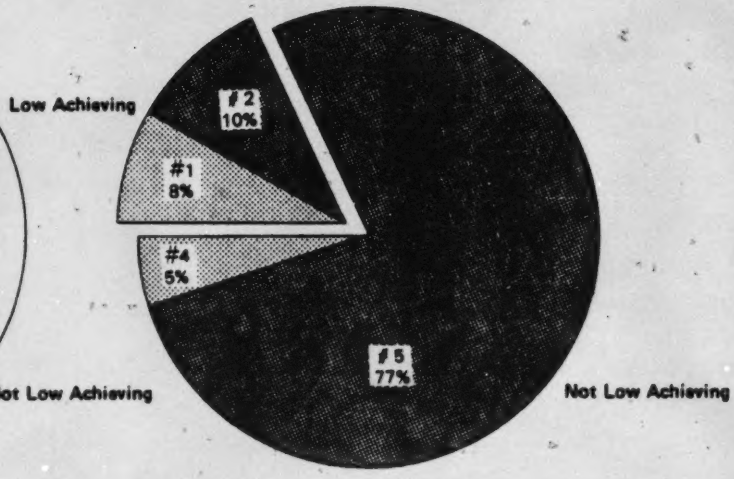


1975-1976



1976-1977





Students Served by Title I

Students in Title I Schools Who Do Not Receive Title I Services

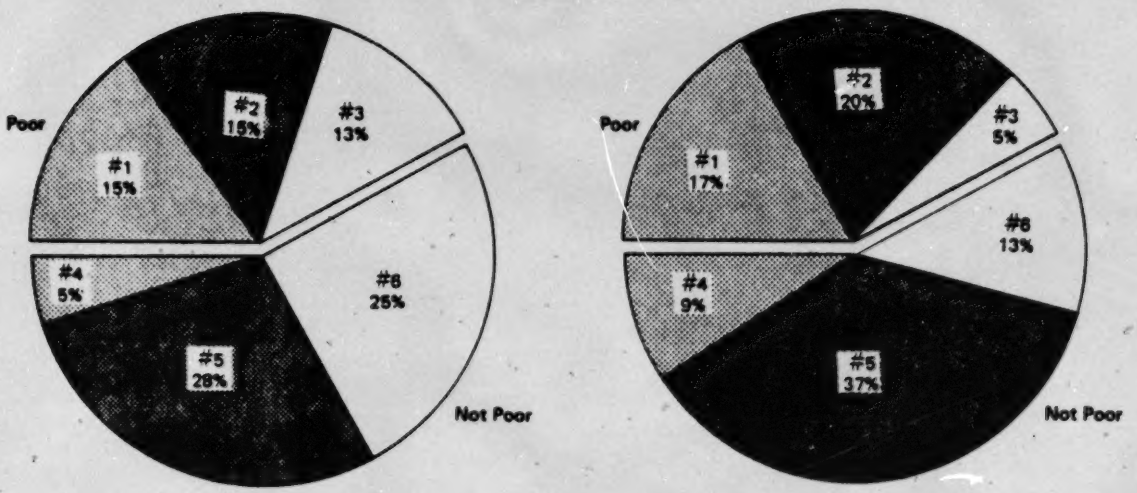
Students in Non-Title I Schools

*Characteristics = $\frac{\#1}{\#1 + \#4}$; Coverage = $\frac{\#1}{\#1 + \#2 + \#3}$

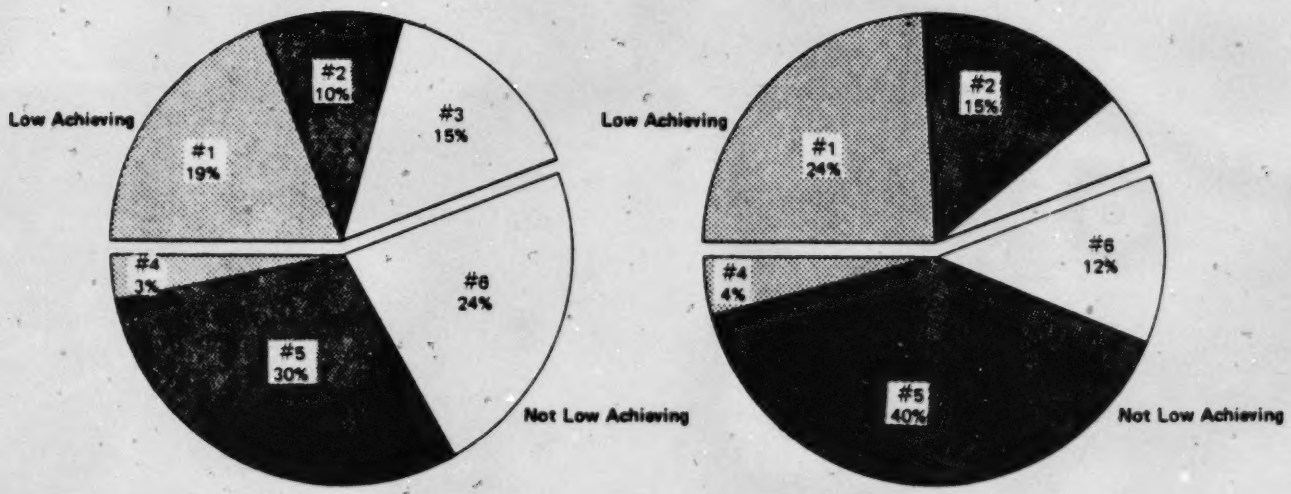
Chart 10

PIE CHART INDICATING THE DIVISION OF THE ENTIRE ELEMENTARY SCHOOL POPULATION INTO THOSE WHO ARE DISADVANTAGED AND THOSE WHO ARE NOT AND SHOWING THE ALLOCATION OF TITLE I SERVICES ACROSS THOSE GROUPS*

School District – Charlotte, North Carolina



1975-1976 1976-1977



Students Served by Title I

Students in Title I Schools Who Do Not Receive Title I Services

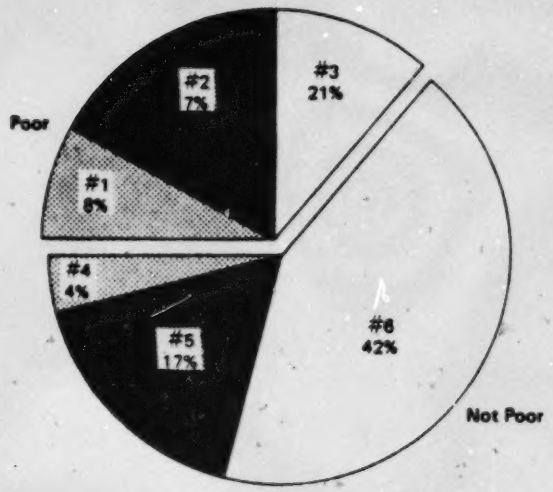
Students in Non-Title I Schools

*Characteristics = $\frac{\#1}{\#1 + \#4}$; Coverage = $\frac{\#1}{\#1 + \#2 + \#3}$

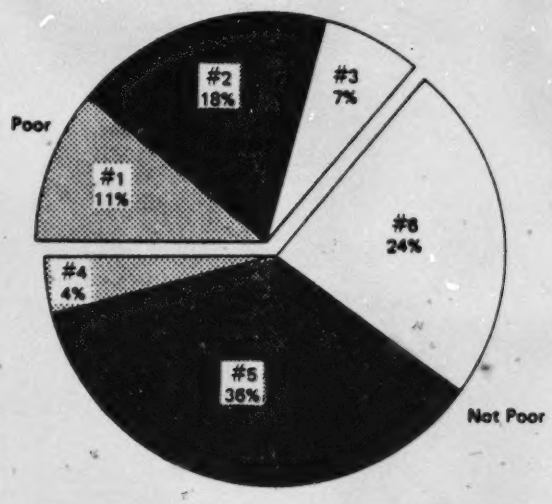
Chart 11

PIE CHART INDICATING THE DIVISION OF THE ENTIRE ELEMENTARY SCHOOL POPULATION INTO THOSE WHO ARE DISADVANTAGED AND THOSE WHO ARE NOT AND SHOWING THE ALLOCATION OF TITLE I SERVICES ACROSS THOSE GROUPS*

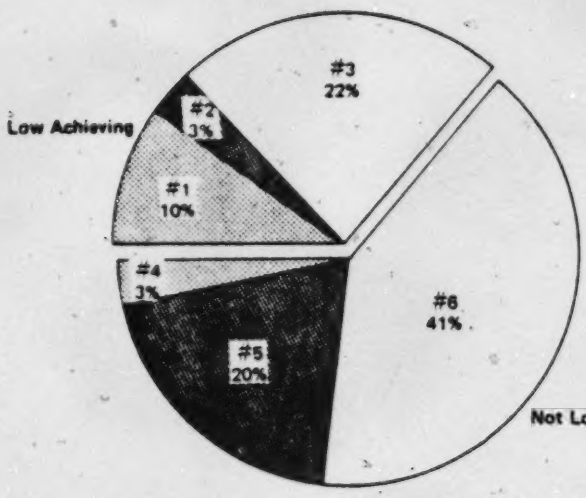
School District -- Winston-Salem, North Carolina

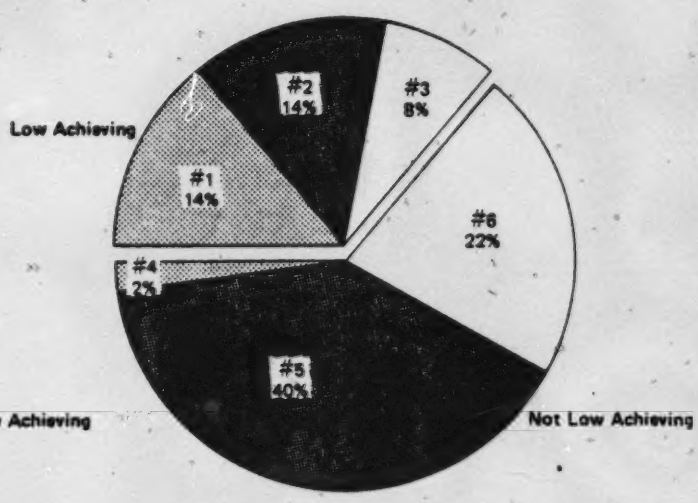


1975-1976



1976-1977





Students Served by Title I

Students in Title I Schools Who Do Not Receive Title I Services

Students in Non-Title I Schools

*Characteristics = $\frac{\#1}{\#1 + \#4}$; Coverage = $\frac{\#1}{\#1 + \#2 + \#3}$

Since the large majority of the Title I money allocated to the Demonstration districts has been used to support language arts instruction, the analyses of instructional changes we have performed focus on this content area. To simplify this discussion we will simply use the term "reading" to include all language arts. There are three aspects of this instruction which we have chosen to discuss here: amount of instruction; measured in minutes of instruction received per day; the size of the groups in which this instruction is received; and the type of instructor directly involved in the delivery of this instruction. The first of these is an indication of the quantity of instruction received; the latter two are indicators of the quality of that instruction. That is, size of groups and type of instructor provide information about the conditions of instructional delivery and thus give us an indication of the quality of the instruction.

Changes in the amount of compensatory reading instruction received by the average Title I student in all thirteen districts were generally small and not statistically significant. However, Title I students in nine of the districts lost some compensatory reading as a result of the Demonstration while students in only two sites realized gains. (See Appendix Table A-9 for the detailed results.) These small changes in quantity of instruction were likewise accompanied by minor changes in the quality of instruction. In fact, changes exceeded levels which may be predicted by chance alone in only one site for group size and in only two sites for teacher type.

It is important to consider these instructional findings in light of the changes in numbers of schools and students served brought about by the Demonstration. What these findings appear to be saying is that districts can significantly increase the number of students receiving Title I services, thereby reducing their Title I per pupil expenditure, without significantly affecting either the quantity or quality of the services they receive. Based on data available to us at this time, however, we believe that this conclusion would be erroneous for two reasons. First, in order to provide these services to the elementary grades, which were the focus of our research, services delivered to other grade levels and services other than reading delivered to the elementary grades were sometimes discontinued.

Therefore, although per pupil expenditures for reading were reduced in a number of districts, they were not reduced as much as they may have been had these changes in programmatic emphasis not been made. Second, a number of the districts were able to use large portions of their carryover monies, as well as monies from other sources, to support their Title I programs in 1976-77. Although we are unable to predict exactly how long such monies would be available, and therefore how long the districts could serve more students without significantly diluting the services they receive, it does appear that a number of the districts could not afford to continue their Demonstration Title I programs for many more than a few years.

As with the results for student composition, the instructional services results varied a great deal across districts. The extent of this variation can be illustrated by examining the same districts which I did with regard to the student composition results.

The three relevant direct allocation districts exhibit varied changes in the minutes per day in compensatory reading instruction received by Title I students and in the additional minutes per day in total reading instruction (compensatory plus regular instruction). For Harrison County, there is a two minute per day increase in compensatory reading instruction while the amount of additional (above non-Title I students) total instruction which Title I students receive is down by one minute. These are insignificant differences. For Santa Fe, there is a decrease of three minutes per day in compensatory reading instruction of Title I students, while the amount of additional total instruction is down by eleven minutes per day. The Title I students in Santa Fe are receiving less compensatory instruction and regular instruction; the non-Title I students also seem to be receiving more regular instruction than they previously did. In the third direct allocation district, Mesa, compensatory reading instruction for Title I students declined by fifteen minutes per day and the additional total instruction for Title I decreased by nine minutes per day. Thus, in Mesa there was a significant loss in total instruction and it was accounted for totally by the loss of compensatory instruction.

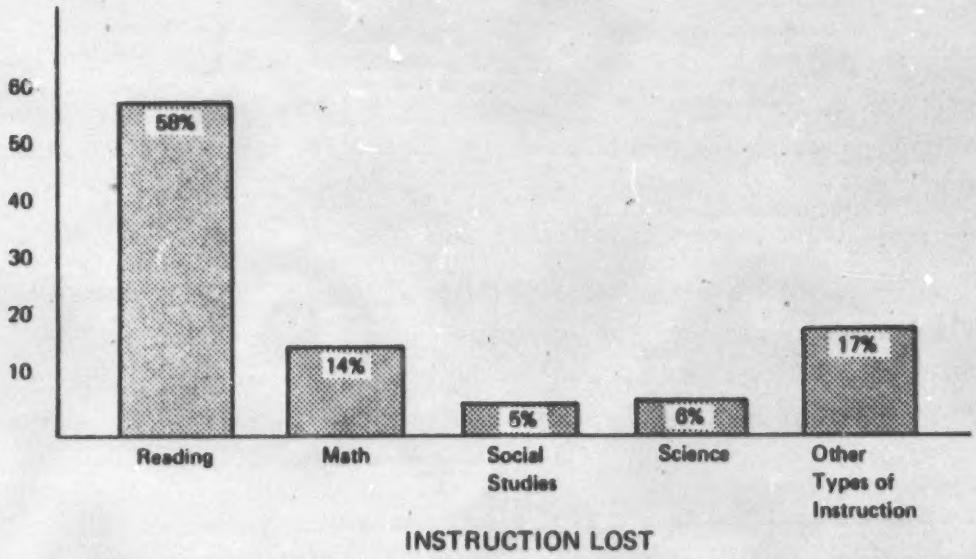
Charlotte and Winston-Salem again provide informative contrasts. In Charlotte, compensatory instruction declined by eight minutes per day and the additional time for Title I students in total instruction declined by ten minutes. Thus, the decline in total instruction is largely the result of the loss of compensatory instruction for Title I students. Winston-Salem, on the other hand, shows no decline in compensatory instruction for Title I students. There is, however, a six minute per day increase in additional total reading instruction, indicating that Title I students are receiving additional regular reading instruction.

Before concluding this general discussion of instructional services, we feel that it is important to highlight another of our findings. In this discussion, we consider reading instruction paid for by the district as well as that supported by Title I. The assumption frequently made, because of Title I prohibitions against supplanting and the accompanying comparability requirements, is that each minute of compensatory reading instruction is added to the instruction which Title I students would normally get from their district's reading program. Our data indicate that this is not the case. In fact, we have found that students who are given compensatory reading instruction tend to lose district supported reading instruction more than any other type of instruction. (Given a fixed-length school day, some instruction has to be lost when compensatory instruction is delivered. However, our data indicate that reading is lost more than any other subject when compensatory reading is delivered.) For 58% of the students receiving compensatory reading, regular reading is being replaced. As a consequence, while the

[Printer: Chart #12 about here.]

average amount of compensatory instruction in reading for Title I students, prior to the waivers, was 35 minutes per day, they received only 13 minutes per day more total instruction (compensatory plus regular) than non-Title I students. Subsequent to the waivers, while the average amount of compensatory instruction decreased to 30 minutes per day for Title I students, they received 14 minutes more per day in total instruction than non-Title I students. (See Appendix, Table A-10 for detailed results.) Title I students receive approximately 10% more instructional time than non-Title I students rather than the 21% to 26% that they would if there was no replacement of reading instruction.

Chart 12
PERCENT OF VARIOUS TYPES OF INSTRUCTION LOST
WHEN TITLE I READING IS RECEIVED



In conclusion, while it is most accurate to say that the allocation options chosen by these thirteen districts varied considerably and the results of these procedures and processes varied, I believe that our findings hold some important implications for future Title I policy.

First, if the goal of Title I is to increase the proportion of served students who are low achieving, this can be done using the allocation options selected by the Demonstration districts. The increases that can be made, however, are not large. Further, it does seem that such increases can be made through more stringent student selection procedures as effectively as they can through altering school eligibility rules to achievement rules. If Title I is to target exclusively on low achieving students, both could be changed.

Second, if Title I is to continue selecting exactly the same proportion of students who live in poverty, then school eligibility rules currently in practice are probably required. The allocation options chosen by the districts result in no wholesale loss of service for poor or minority students when these rules are abandoned, but there is a small decline.

Third, no districts achieved large increases in the proportion of Title I students who were low achieving while minimizing the decline for poor students. If that is the goal for Title I, then the combination of some form of school eligibility based on poverty or on poverty plus achievement level with more stringent student selection rules is necessary.

Fourth, if the intent of Congress is to insure that every minute of Title I reading instruction is in addition to regular reading instruction, then it is necessary to establish new regulations and guidelines which will guarantee this.

Finally, while these districts served more students without reducing the level of service, they cannot do so for long without an increase in funding.

Detailed Tables and Charts

Table A-1
PERCENT OF ALL LOW-ACHIEVING* CHILDREN
WHO PARTICIPATE IN TITLE I

DISTRICT/CRITERIA	1975-1976 (PERCENT)	1976-1977 (PERCENT)	CHANGE
Districts that serve low-achieving students in all elementary schools			
Adams County #12	7	29	22
Harrison County	59	75	16
Mesa	38	47	9
Newport	20	44	24
Racine	14	44	30
Sante Fe	51	66	15
Districts that rank schools by achievement and serve fewer than all elementaries			
Charlotte	44	54	10
Winston-Salem	26	38	12
Districts that rank schools primarily by poverty			
Berkeley County	26	45	19
Boston	47	59	12
Houston	21	17	– 4
Districts making primarily intra-school changes			
Alum Rock	27	99	72
Yonkers	54	47	– 7
Average	33	51	18

* Read 1 year or more below grade level.

315

Table A-2
PERCENT OF ALL FREE AND REDUCED-PRICE LUNCH RECIPIENTS WHO PARTICIPATE IN TITLE I

DISTRICT/CRITERIA	1975-1976 (PERCENT)	1976-1977 (PERCENT)	CHANGE
Districts that serve low-achieving students in all elementary schools			
Adams County #12	3	14	11
Harrison County	36	42	6
Mesa	28	20	– 8
Newport	15	22	7
Racine	8	25	17
Santa Fe	30	36	6
Districts that rank schools by achievement and serve fewer than all elementaries			
Charlotte	35	40	5
Winston-Salem	23	31	8
Districts that rank schools primarily by poverty			
Berkeley County	19	35	16
Boston	31	40	9
Houston	21	15	– 6
Districts making primarily intra-school changes			
Alum Rock	29	96	67
Yonkers	53	50	– 3
Average	26	36	10

Table A-3
PERCENT OF ALL MINORITY CHILDREN WHO PARTICIPATE IN TITLE I

DISTRICT/CRITERIA	1975-1976 (PERCENT)	1976-1977 (PERCENT)	CHANGE
Districts that serve low-achieving students in all elementary schools			
Adams County #12	2	15	13
Harrison County	30	35	5
Mesa	27	21	– 6
Newport	10	22	12
Racine	7	24	17
Santa Fe	23	29	6
Districts that rank schools by achievement and serve fewer than all elementaries			
Charlotte	32	39	7
Winston-Salem	20	28	8
Districts that rank schools primarily by poverty			
Berkeley County	26	39	13
Boston	30	38	8
Houston	15	15	0
Districts making primarily intra-school changes			
Alum Rock	28	95	67
Yonkers	61	54	– 7
Average	24	35	11

Table A-4

PERCENT OF LOW-ACHIEVING CHILDREN WHO WERE IN TITLE I SCHOOLS AND DID NOT RECEIVE TITLE I SERVICES IN YEAR 1 COMPARED WITH THE PERCENT INCREASE IN LOW-ACHIEVING CHILDREN SERVED DURING THE DEMONSTRATION

DISTRICT/CRITERIA	PERCENT OF LOW-ACHIEVING CHILDREN IN TITLE I SCHOOLS AND NOT SERVED BEFORE THE DEMONSTRATION	PERCENT INCREASE IN LOW-ACHIEVING CHILDREN SERVED DURING THE DEMONSTRATION
Districts that serve low-achieving students in all elementary schools		
Adams County #12	16	22
Harrison County	24	16
Mesa	21	9
Newport	15	24
Racine	23	30
Santa Fe	25	15
Districts that rank schools by achievement and serve fewer than all elementaries		
Charlotte	23	10
Winston-Salem	9	12
Districts that rank schools primarily by poverty		
Berkeley County	44	19
Boston	19	12
Houston	16	– 4
Districts making primarily intra-school changes		
Alum Rock	25	72
Yonkers	8	– 7
Average	21	18

Table A-5

PERCENT OF CHILDREN WHOSE READING ACHIEVEMENT IS BETTER THAN 1 YEAR BELOW GRADE LEVEL AND PARTICIPATE IN TITLE I

DISTRICT/CRITERIA	1975-1976 (PERCENT) (1)	1976-1977 PERCENT (2)	CHANGE (2-1)
Districts that serve low-achieving students in all elementary schools			
Adams County #12	0	3	3
Harrison County	9	12	3
Mesa	10	6	−4
Newport	5	8	3
Racine	3	6	3
Santa Fe	9	9	0
Districts that rank schools by achievement and serve fewer than all elementaries			
Charlotte	5	10	5
Winston-Salem	5	3	−2
Districts that rank schools primarily by poverty			
Berkeley County	4	13	9
Boston	11	20	9
Houston	6	5	−1
Districts making primarily intra-school changes			
Alum Rock	25	90	65
Yonkers	12	12	0
Average	8	15	7

Table A-6
CHANGES IN THE PERCENTAGE OF TITLE I STUDENTS WHO ARE LOW ACHIEVING, POOR, AND/OR MINORITY GROUP MEMBERS

DISTRICT/CRITERIA	PERCENTAGE LOW ACHIEVING[1]			PERCENTAGE POOR[2]			PERCENTAGE MINORITY GROUP MEMBERS[3]		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Districts that serve low-achieving students in all elementary schools									
Adams County #12	83	74	−9	24	21	−3	19	26	7
Harrison County	67	68	1	65	58	−7*	6	4	−2
Mesa	44	62	18*	45	32	−13*	29	24	−5
Newport	53	66	13	77	62	−15	21	24	3
Racine	60	58	−2	44	42	−2	43	43	0
Sante Fe	64	72	8*	86	75	−11*	87	83	−4
Districts that rank schools by achievement and serve fewer than all elementaries									
Charlotte	83	79	−4[c]	73	61	−12*	67	60	−7*
Winston-Salem	72	88	16[c]	64	71	7*	54	62	8*
Districts that rank schools primarily by poverty									
Berkeley County	79	67	−12[c]	57	57	0	11	8	−3
Boston	65	64	−1	91	92	1	73	73	0
Houston	67	67	0	83	85	2	99	98	−1
Districts making primarily intra-school changes									
Alum Rock	49	54	5*	89	78	−11*	87	78	*−9[c]
Yonkers	61	72	11[c]	85	72	−13[c]	89	70	−19*
Average	65	69	4	68	62	−6	53	50	−3

1 Low achieving is defined here as reading one year or more below grade level, based on Classroom Roster information.

2 Poverty is defined here as participating in the free lunch program, based on Classroom Roster information

3 Minority group membership is defined here as all other races besides White/not of Hispanic origin, based on Classroom Roster information.

* Significant at $P \leq .05$.

c Significant at $P \leq .05$, but confounded by changes in the non-Title I group or in the distribution of students across schools within the district.

Table A-7

CHANGES IN THE PERCENTAGE OF TITLE I STUDENTS READING AT THREE DIFFERENT ACHIEVEMENT LEVELS

DISTRICTS	1 YEAR OR MORE BELOW GRADE LEVEL			APPROXIMATELY ½ YEAR BELOW GRADE LEVEL			AT GRADE LEVEL OR ABOVE		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Districts that serve low-achieving students in all elementary schools									
Adams County #12	83	74	−9	12	24	12	5	2	−3
Harrison County	67	68	1	26	25	−1	7	7	0
Mesa	44	62	18	26	23	−3	30	15	−15
Newport	53	66	13	30	25	−5	17	9	−8
Racine	60	58	−2	34	31	−3	6	11	5
Santa Fe	64	72	8	26	20	−6	10	8	−2
Districts that rank schools by achievement and serve fewer than all elementaries									
Charlotte	83	79	−4	13	14	1	4	7	3
Winston-Salem	72	88	16	23	11	−12	5	1	−4
Districts that rank schools primarily by poverty									
Berkeley County	79	67	−12	13	23	10	8	10	2
Boston	65	64	−1	20	23	3	15	13	−2
Houston	67	67	0	20	20	0	13	13	0
Districts making primarily intra-school changes									
Alum Rock	49	54	5	26	20	−6	25	26	1
Yonkers	61	72	11	18	12	−6	21	17	−4
Average	65	69	4	22	21	−1	13	11	−2

Chart A–8
COMPARISON OF CHANGES IN THE CHARACTERISTICS OF TITLE I STUDENTS AT DIFFERENT ACHIEVEMENT LEVELS

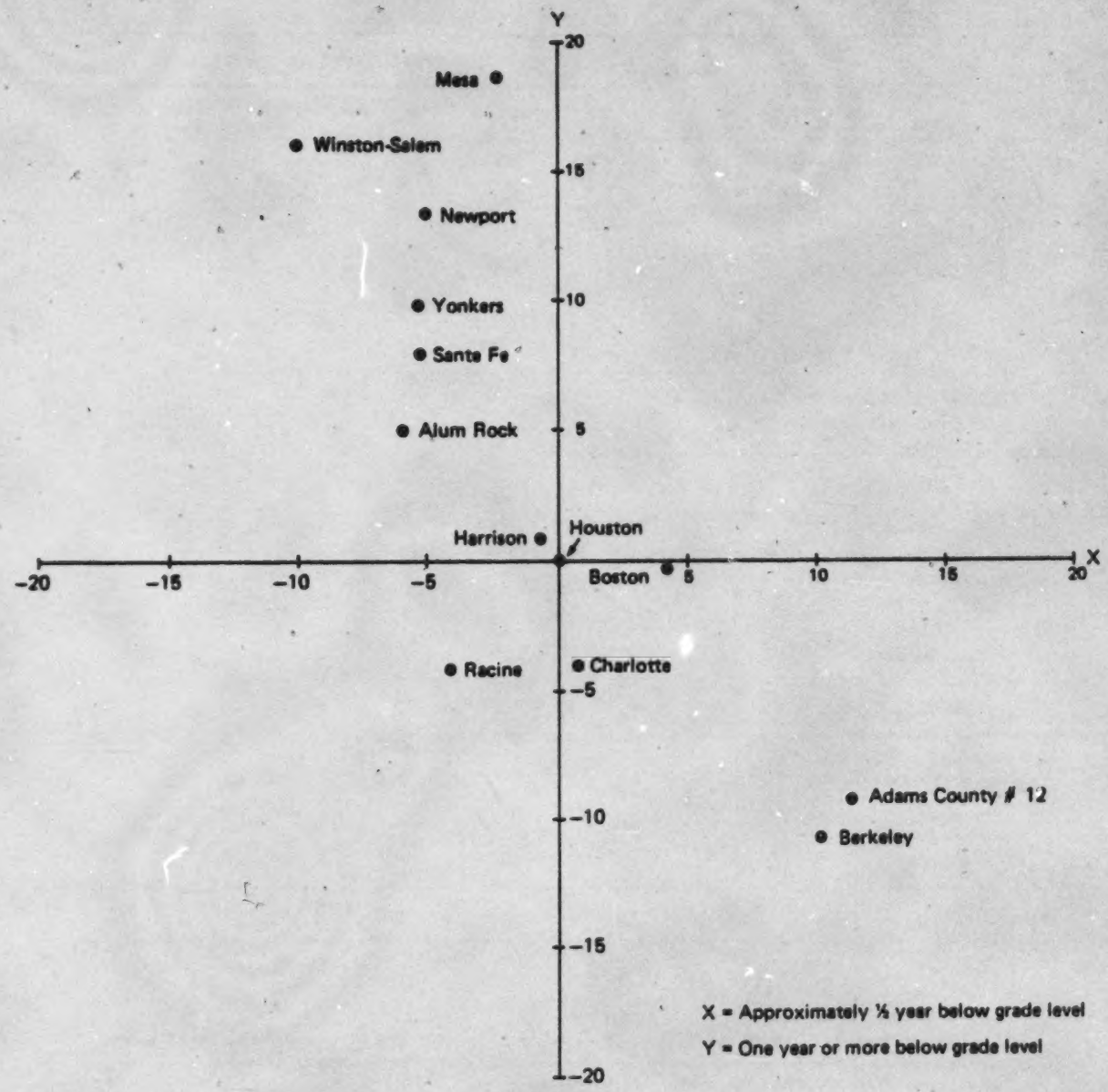


Table A-9

TIME (MINUTES PER DAY) SPENT IN COMPENSATORY LANGUAGE ARTS INSTRUCTION FOR TITLE I STUDENTS IN THE DEMONSTRATION DISTRICTS*

DISTRICT/CRITERIA	COMPENSATORY LANGUAGE ARTS		
	1975-76**	1976-77***	CHANGE
Districts that serve low-achieving students in all elementary schools			
Adams County #12	28	27	– 1
Harrison County	28	30	2
Mesa	37	22	–15†
Racine	34	26	– 8†
Santa Fe	27	24	– 3
Districts that rank schools by achievement and serve fewer than all elementaries			
Charlotte	35	27	– 8†
Winston-Salem	41	41	0
Districts that rank schools primarily by poverty			
Berkeley County	35	26	– 9
Boston	41	34	– 7
Houston	38	34	– 4
Districts making primarily intra-school changes			
Alum Rock	41	31	–10
Yonkers	30	35	5
Average	35	30	– 5

* Newport is excluded from analyses that depend on the Classroom Activities Log (CAL) because the sample of students receiving language arts instruction was too small to permit reliable estimate. Program changes in Newport will be presented in technical reports to be published by Abt Associates Inc.

** N = 412

*** N = 630

† Change is significant at the .05 level.

Table A-10
TIME (MINUTES PER DAY) SPENT IN TOTAL LANGUAGE ARTS INSTRUCTION FOR TITLE I AND NON-TITLE I STUDENTS IN THE DEMONSTRATION DISTRICTS*

DISTRICT/CRITERIA	TITLE I STUDENTS			NON-TITLE I STUDENTS		
	1975-76	1976-77	CHANGE	1975-76	1976-77	CHANGE
Districts that serve low-achieving students in all elementary schools						
Adams County #12	137	144	7	121	132	11
Harrison County	148	146	– 2	131	130	– 1
Mesa	133	138	5	111	125	14
Racine	146	149	3	131	140	9
Sante Fe	138	131	– 7	115	119	4
Districts that rank schools by achievement and serve fewer than all elementaries						
Charlotte	132	121	– 11†	112	111	– 1
Winston-Salem	153	165	12††	138	144	6
Districts that rank schools primarily by poverty						
Berkeley County	146	167	21	145	150	5
Boston	131	140	9	108	111	3
Houston	160	179	19†	149	155	6
Districts making primarily intraschool changes						
Alum Rock	109	126	17	107	112	5
Yonkers	97	137	40††	106	141	35
Average	136	145	9	123	131	8

* Newport is excluded from analyses that depend on the Classroom Activities Log (CAL) because the sample of students recieving language arts instruction was too small to permit reliable estimates. Program changes in Newport will be presented in technical reports to be published by Abt Associates Inc.

** N = 412

*** N = 630

† Change is significant at the .05 level.

†† Change is significant at the .05 level, but occurs systemwide (for the non-Title I group as well).

Chart A–11
STAGES IN THE ALLOCATION PROCESS FOR TITLE I ESEA FUNDS DISTRIBUTION

	Decision Level in the Allocation Process and Level of Administrative Responsibility	TYPE OF DECISION AND ACTION	STAGES
INTER-DISTRICT ALLOCATION	Decisions and Actions of the U.S. Commissioner Allocating Resources to States and to Counties Level I	Eligibility of States for Funds	1
		Targeting of Funds to Eligible SEAs (Counties)	2
		Proportional Distribution of Resources to States and Counties	3
	Decisions and Actions of SEAs Allocating Resources to LEAs Level II	Eligibility of LEAs Based on Distribution of Poor Students	4
		Targeting Eligible LEAs for Grants Based on Applications	5
		Proportional Distribution of Resources to Counties and Sub-counties. Redistribution of Excess Funds	6
INTRA-DISTRICT ALLOCATION	Decisions and Actions of LEAs Allocating Resources to Schools Level III	Eligibility of Schools Based on Concentration of Poor Students	7
		Targeting of Schools Based on Percent, or Number, or Both, of Poor Students	8
		Proportional Distribution of Resources to Targeted Schools in Order to Serve the Neediest and Concentrate Services Effectively	9
	Decisions and Actions of School and Program Staff Allocating Resources to Students Level IV	Eligibility of Students Based on Educational Disadvantage	10
		Targeting of Students Based on Greatest Need	11
		Proportional Distribution of Services According to Need	12